

PRELIMINARY ENGINEERING REPORT EAST WEBSTER LAKE AREA WASTEWATER COLLECTION SYSTEM

**PREPARED FOR
TIPPECANOE AND CHAPMAN REGIONAL SEWER DISTRICT
KOSCIUSKO COUNTY, INDIANA**

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PREPARED BY:



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Green Project Reserve is not being pursued for this project.

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EXECUTIVE SUMMARY

Project Location & Introduction

The information presented within this report will provide the basis of design for the wastewater collection system and treatment system within the East Webster Lake area. Ultimately, the accumulated data, the analysis of that data, and the resultant recommended plan will serve to guide the Tippecanoe and Chapman Regional Sewer District (the “District”) in the consideration of constructing a new wastewater collection system for the considered service area. The new infrastructure will allow the District to provide wastewater service to households and commercial users and will allow the community to better plan for growth and ensure that the essential resources are available to do so. The system will convey flow to the existing North Webster Wastewater Treatment Plant (WWTP).

The project area is located in northeastern Kosciusko County, Indiana. The proposed project area includes the eastern section of Webster Lake – the area is roughly bounded by Epworth Forest Rd to the north, N 950 E and Backwater Rd to the east, and the Backwaters Public Access Site to the south. Figure 1 provides an overview of the project service area. For this study, the service area and 20-year study are identified as the same boundary due to the fact that there is limited space for growth and development within East Webster Lake.

The East Webster Lake service area is depicted on the USGS Quadrangle Map on Figure 2 and is located in Sections 12-14 of Township 33 North, Range 7 East, Tippecanoe Township in Kosciusko County, Indiana.

Project Scope & Need

The residents of the East Webster Lake service area mostly rely on private wells for drinking water and private onsite septic systems for wastewater disposal and treatment. Residents of the proposed service area have experienced problems with individual on-site septic systems, as many of the septic systems are old and failing. Failing septic systems allow untreated sewage to discharge to the groundwater and surrounding lakes and rivers, thus resulting in the potential for serious health and safety issues. Many of the parcels with houses in the service area are small and do not allow for proper separation between the septic systems and the groundwater wells (either from their own on-site systems or from their neighbors’ systems). If the current septic systems are not eliminated, the water quality (both surface and groundwater) will continue to degrade, resulting in potential for private water wells becoming contaminated. Figure 1A shows a layout of existing septic tank inspections.

The soils found in these service areas consist mostly of muck, loamy sand, and sandy loam which are “very limited” in respect to use as absorption field for septic systems, resulting in poor performance and high maintenance. Therefore, the soils are not conducive for the intended treatment results without major soil reclamation, special design, or expensive installation procedures. See Figure 3 for the USDA soils maps of the study area.

Proposed Project

The following alternatives were considered for the East Webster Lake collection system:

- No Action
- Alternative No. 1 – Collection System – Gravity Collection System
- Alternative No. 2 – Collection System – Pressure Collection System
- Alternative No. 3 – Wastewater Treatment – Utilize North Webster WWTP
- Alternative No. 4 – Wastewater Treatment – New WWTP

Where applicable, cost estimates, non-construction costs, operation and maintenance costs, and comparison of these alternatives were evaluated and considered in order to determine the most realistic and feasible alternative for East Webster Lake.

The proposed project will include the following:

- A new lift station along Epworth Forest Rd, near Webster Bay mobile home park.
- Force mains and pressure sewer will be extended to the existing force main along Epworth Forest Rd that was built as part of the Knapp Lake Area Conservancy District.
- A new pressure sewer system serving the East Webster Lake area – approximately 199 new customers, including the Webster Bay Mobile Home Park. The East Webster Lake pressure sewer will connect to the proposed lift station along Epworth Forest Rd. From there, the wastewater flow will be conveyed to the existing force main along Epworth Forest Rd and continue west to the existing North Webster WWTP.

The proposed pressure sewer system will be conveyed to the existing North Webster WWTP.

The proposed wastewater collection system will be mainly constructed within the existing county and/or INDOT rights-of-way. There are approximately six segments of the collection system which may require easements through existing undeveloped areas: five along informal but publicly accessible and regularly utilized access roads, and the other through an undeveloped section of the aforementioned privately-owned mobile home park. In these segments, the District will need to acquire easements for the collection system. Blanket easements will also be required for the installation of the grinder pump units on individual lots, where applicable. The required property rights will be secured prior to closing on the SRF financing package.

1. CURRENT CONDITIONS

As discussed in the previous section, the purpose of the report is to consider providing wastewater service for the East Webster Lake service area.

1.1 EXISTING WASTEWATER FACILITIES – SERVICE AREA

As mentioned above, the residents and businesses within these service areas mostly rely on private wells for drinking water and septic systems for wastewater disposal and treatment. In addition, many residents have experienced problems with septic systems. Old and failing septic systems cannot easily be replaced or fixed, and the sewage often can cause groundwater contamination or can seep into drinking wells. In addition, due to small lot sizes and close proximity to wells, it can be difficult to find a separate location on a property to add a new septic tank.

As part of this study, the Kosciusko County Health Department was contacted for any concerns or opinion on the current septic systems. The Health Department Administrator responded with a letter supporting the elimination of septic systems and installation of a public sewer system in the proposed service area. Appendix A presents the letter of support from the Administrator of the Health Department.

Septic inspection records were also collected from the Kosciusko County Health Department. Approximately 67 installation inspection records were received from the Health Department, with a note that any records of installations prior to approximately 1982 were destroyed in a fire in the former Department office location. With 199 planned connections in the service area, the records received represent only 33% of septic systems in the service area – this indicates that the remaining 67% of customers in the area would have septic systems that were installed prior to 1982, and therefore are well beyond their useful life. The records received document systems installed or repaired ranging from 2 to 40 years ago; it could be reasonably assumed then that approximately half of those documented systems are also beyond their useful life. Altogether, an estimated 166 – or 83% – of the septic systems in the service area are expected to be beyond their useful life, leeching their contents into the surrounding soil and negatively affecting the groundwater and lake water quality.

Figure 4 shows the existing service areas and layout.

1.2 EXISTING WASTEWATER FACILITIES – NORTH WEBSTER WWTP

The existing North Webster WWTP is located at 7203 East County Road 650 North, North Webster, Indiana, Kosciusko County. According to the NPDES Permit No. IN0040444, the WWTP is a Class II facility designed to handle flows up to 0.571 million gallons a day (MGD).

The extended aeration treatment facility consists of an influent structure with three channels which each contain one fine screen or one manual bypass bar screen, an aerated grit chamber, five aeration tanks, three secondary clarifiers with Return Activated Sludge (RAS) pumps, a polishing pond, chlorination/dechlorination facilities, phosphorus removal facilities, post-aeration facilities, and flow measurement prior to eventual discharge to Kuhn Ditch which then flows to James Lake. The facility is authorized to discharge from Outfall 001, which is located at Latitude: 42° 19' 36.4" N, Longitude: 85° 42' 24.8" W. Refer to Appendix B for the SRF Preliminary Design Summary.

In general, the condition of the existing WWTP can be described as satisfactory. The facility was rehabilitated in 2016 per Construction Approval No. L-0475 and has not received any non-compliance violations since that time. The facility would be able to accommodate the flows from the new service area based on existing treatment capacity.

The North Webster WWTP and the main lift station (Lift Station No. 10) were both rehabilitated in 2016 as a part of a capacity expansion project to accommodate wastewater flows from the Knapp Lake Area Conservancy District. The Knapp Lake project added approximately 200 customers to the facility load. Lift Station No. 10 is rated for 750 gallons per minute (GPM).

According to the latest and applicable NPDES permit (10/04/2018), the following are the current effluent limits for the facility.

Table 1 – Existing North Webster WWTP Effluent Permit Limits

| Parameter | Quantity/Loading (lb/d) | | Concentration (mg/L) | |
|---------------------------|--|-------------|----------------------|-------------|
| | Monthly Avg. | Weekly Avg. | Monthly Avg. | Weekly Avg. |
| CBOD ₅ | 48 | 71 | 10 | 15 |
| TSS | 57 | 86 | 12 | 18 |
| Ammonia-Nitrogen (Summer) | 5.2 | 7.6 | 1.1 | 1.6 |
| Ammonia-Nitrogen (Winter) | 7.6 | 11.4 | 1.6 | 2.4 |
| pH | 6.0 (min) to 9.0 (max.) | | | |
| Dissolved Oxygen | 6.0 mg/L daily min. limit | | | |
| E. Coli | 125 count/100 mL monthly, 235 count/100mL daily max. | | | |

A review of the Monthly Reports of Operation (MROs) obtained from the IDEM VFC (Indiana Department of Environmental Management Virtual File Cabinet) for 2021 through July 2023 show that the facility averages 0.36 MGD and has a maximum average of 0.50 MGD.

Table 2 and Table 3 below provide an average of influent and effluent concentrations and loadings for the four primary wastewater constituents for the last three years.

Table 2 – Existing Influent Wastewater Parameters – North Webster WWTP

| EXISTING WASTEWATER PARAMETERS | | | | | | | |
|--------------------------------|--------|--------|--------|---------|-------|------------|-------|
| Influent Loading | | | | | | | |
| CBOD | | TSS | | Ammonia | | Phosphorus | |
| mg/L | lbs. | mg/L | lbs. | mg/L | lbs. | mg/L | lbs. |
| 114.17 | 344.38 | 117.48 | 356.87 | 15.30 | 46.27 | 3.43 | 10.36 |

Table 3 – Existing Effluent Wastewater Parameters – North Webster WWTP

| EXISTING WASTEWATER PARAMETERS | | | | | | | |
|---------------------------------------|-------|------|-------|---------|------|------------|------|
| Effluent Loading | | | | | | | |
| CBOD | | TSS | | Ammonia | | Phosphorus | |
| mg/L | lbs. | mg/L | lbs. | mg/L | lbs. | mg/L | lbs. |
| 4.97 | 13.23 | 4.44 | 11.67 | 0.17 | 0.44 | 0.59 | 1.58 |

Based on these records, the facility does not appear to have any violations with TSS or Ammonia concentrations. However, the facility did have one (1) Phosphorus violation in 2022 and a few BOD violations in 2021. Appendix C provides a full summary of the North Webster WWTP MROs. The table below shows existing design treatment plant flows for the facility.

Table 4 – Design Treatment Plant Flows

| Design Treatment Plant Flows (MGD) | |
|---|-------|
| Domestic (D) | N/A |
| Industrial/Commercial (C) | N/A |
| Infiltration/Inflow (I) | N/A |
| Average Design Flow | 0.571 |
| Average Design Peak Flow | 2.16 |
| Maximum Plant Flow Capacity | 2.16 |

The existing North Webster WWTP waste loads are provided below.

Table 5 – Existing Waste Load Summary

| Existing Waste Load Summary | | | | | | | | | | |
|------------------------------------|-------------------|--------------|----------------------|----------------|---------------------|----------------|---------------------|----------------|----------------------|----------------|
| Service Area Description | Flow (MGD) | | CBOD (at ADF) | | TSS (at ADF) | | NH3 (at ADF) | | Phos (at ADF) | |
| | ADF | Peak | mg/L | lbs/day | mg/L | lbs/day | mg/L | lbs/day | mg/L | lbs/day |
| North Webster WWTP | 0.366 | 0.410 | 114.17 | 344.4 | 117.5 | 356.9 | 15.3 | 46.3 | 3.4 | 10.4 |
| Total | 0.366 | 0.410 | | 344.4 | | 356.9 | | 46.3 | | 10.4 |

1.3 EXISTING WASTEWATER FACILITIES – KNAPP LAKE

The Knapp Lake Area Collection System project includes a pressure sewer system for the Knapp Lake area, which serves approximately 209 single-family homes and a campground with 120 camp sites. There are approximately 141 Type I simplex grinder pump stations, 34 Type II simplex grinder pump stations, and two (2) Type V duplex grinder pump stations. This also includes a lift station with a capacity of 175 GPM, which is located along CR 950 W, 200 feet south of the intersection of West Gilbert Lake Road and CR 950 W. The existing Knapp Lake force main conveys flow from the existing Knapp Lake Lift Station to Lift Station No. 10. The force main from the Knapp Lake Lift Station runs approximately 950 feet north along CR 950 W to W 125 S. Then, it runs approximately 2 miles west along W 125 S/W 100 S to SR 5. From SR 5, the force main runs 2,300 feet south to W 125 S. The force main then runs west along W 125 S/Epworth Forest Road for approximately 3.6 miles to SR 13. From there, the force main runs 1,000 feet south and then 700 feet west on Crystal Flash Road/E 650 N, where it discharges into Lift Station No. 10. Refer to Figure 4 for the existing system locations and force main route.

1.4 EXISTING WASTEWATER FACILITIES – CURRENT FLOWS

Table 6 below presents current estimated wastewater flows for the considered service area. The table also presents the anticipated Residential Equivalent Unit (REU) chart for residences and businesses as well as anticipated connection counts for the service areas.

Based on the past history for the District, with multiple service areas within the District's existing jurisdiction, an average daily flow (ADF) of 175 gallons per day (GPD) per single family residential dwelling was used as a flow factor for residential wastewater flow. Commercial/Industrial flow factors were based on standard flow factor rates, employee counts, where applicable.

Table 6 – Existing Wastewater Flows

| East Webster Lake | | | | | | | | |
|---------------------------------|-------------------------|---------------|--------------------|---------------|------------------|----------------|-----------------------|---|
| Service Connection Description | Unit/Calculation Factor | | Count | REUs | Est. Flows (GPD) | Peaking Factor | Est. Peak Flows (GPD) | Est. Flows per flow analysis (GPD), 1/2 |
| Residences | 175 | Per Residence | 197 | 197.00 | 34,475 | 4 | 137,900 | |
| Mobile Home Park ⁽¹⁾ | 131.25 | Per Lot | 31 | 23.25 | 4,069 | 4 | 16,275 | |
| Sock's Marina | 20 | Per Employee | 3 | 1.00 | 60 | 4 | 240 | |
| Note: 199 customers | | | Total REUs | 221.00 | | | | |
| | | | Total Flows | | 38,604 | | 154,415 | 19,302 |

⁽¹⁾ 175 mobile homes * 0.75 = 131.25 factor per lot

A recent flow study was done to evaluate future flows and conditions at the North Webster WWTP from Knapp Lake and East Webster Lake flows. Initially, the existing average daily flows and peak flows for both North Webster and Knapp Lake were evaluated using available Monthly Reports of Operation (MRO) information on either the IDEM Virtual File Cabinet or from the District of North

Webster. For both North Webster and Knapp Lake, average and peak CBOD, TSS, Ammonia, and Phosphorus values were calculated in both mg/L and lbs./day. Both weekly and daily quantities and loadings for Knapp Lake were calculated in mg/L and lbs./day. Based on these assumptions, Knapp Lake conveys approximately 11,223 GPD of flow to the North Webster WWTP. The previous flow study can be found in Appendix D. Please note that REUs have been reevaluated since the initial flow study was conducted.

The existing North Webster and Knapp Lake flow averages were reviewed to evaluate and determine an estimated design average for the East Webster Lake area. In the above calculated REUs, it is estimated that East Webster Lake will convey approximately 38,604 GPD of flow to the North Webster WWTP. However, based on the assumption that East Webster Lake will have similar values as Knapp Lake and in order to remain conservative, the assumption used will be half of the design flow; therefore, for these calculation and design purposes, the average design flow used for East Webster Lake will be 19,302 GPD. In addition, using the Knapp Lake averages and the allowed amounts per the interlocal agreement between Knapp Lake and North Webster, design averages for CBOD, TSS, Ammonia, and Phosphorus for East Webster Lake were able to be determined.

There is currently an existing interlocal agreement between Knapp Lake and the District. The agreement was entered on October 21, 2014 and allows for Knapp Lake to convey approximately 37,350 GPD of flow to the North Webster WWTP. This agreement can be found in Appendix E. Based on the flows from Knapp Lake (11,223 GPD) and the proposed East Webster Lake flows (19,302 GPD), the total flow from these lakes will be approximately 30,525 GPD, which is within the allotted amount defined in the interlocal agreement.

The existing lift station information for the North Webster Lift Station (No. 10) and Knapp Lake Lift Station are provided in the table below.

Table 7 – Existing Lift Station Data

| Lift Station No. | No. of Pumps | Existing Pump Capacity (GPM) | Average Flow (GPD) | Peak Day (GPD) | Average Runtime (HR/DAY) | Peak Day Runtime (HR/DAY) |
|--|---------------------|-------------------------------------|---------------------------|-----------------------|---------------------------------|----------------------------------|
| Knapp Lake Lift Station | Duplex | 175 | 11,223 | 46,929 | 1.07 | 4.47 |
| North Webster Lift Station (Lift Station No. 10) | Triplex | 750 | 301,871 | 997,351 | 6.71 | 22.16 |

The North Webster Lift Station is rated for 750 GPM and includes existing flows from Knapp Lake.

2. UTILITY NEEDS & FUTURE SITUATION

The anticipated future wastewater flows and waste load needs are discussed in the sections below.

2.1 FUTURE WASTEWATER SITUATION – COLLECTION SYSTEM

According to the 2020 Census produced by the Indiana Business Research Center, which is a research unit in the Kelley School of Business at Indiana University, there was a population of 998 people in the town of North Webster, 6,576 people in Tippecanoe township, and 80,240 people in Kosciusko County in total, as well as 1,073 people in Washington township and 47,457 people in Noble County in total.

Table 8 – Population History

| Year | North Webster | | Tippecanoe Twp. | | Kosciusko County | | Washington Twp. | | Noble County | |
|------|---------------|----------|-----------------|----------|------------------|----------|-----------------|----------|--------------|----------|
| | Population | % Change | Population | % Change | Population | % Change | Population | % Change | Population | % Change |
| 1980 | 709 | -- | 5,340 | -- | 59,555 | -- | 979 | -- | 35,443 | -- |
| 1990 | 881 | 24.3 | 6,197 | 16.0 | 65,294 | 9.6 | 979 | 0.0 | 37,877 | 6.9 |
| 2000 | 1,067 | 21.1 | 6,493 | 4.8 | 74,057 | 13.4 | 1,182 | 20.7 | 46,275 | 22.2 |
| 2010 | 1,146 | 7.4 | 6,661 | 2.6 | 77,358 | 4.5 | 1,200 | 1.5 | 47,536 | 2.7 |
| 2020 | 998 | -12.9 | 6,576 | -1.3 | 80,240 | 3.7 | 1,073 | -10.6 | 47,457 | -0.2 |

Information from the Indiana Business Research Center shows that there has been a continuous increase for all proximate communities since 1980, until 2020 when all areas except Kosciusko County experienced modest declines.

The data below shows population projections for Kosciusko and Noble Counties from 2020 through 2050; however, the projections for the other three areas were estimated based on the projections for their respective counties. Table 9 below provides the population projections for the two counties, the town of North Webster, and the two townships.

Table 9 – Population Projections

| Year | North Webster | | Tippecanoe Twp. | | Kosciusko County | | Washington Twp. | | Noble County | |
|------|---------------|----------|-----------------|----------|------------------|----------|-----------------|----------|--------------|----------|
| | Population | % Change | Population | % Change | Population | % Change | Population | % Change | Population | % Change |
| 2020 | 998 | -- | 6,576 | -- | 80,240 | -- | 1,073 | -- | 47,457 | -- |
| 2025 | 1,021 | 2.3 | 6,726 | 2.3 | 82,066 | 2.3 | 1,100 | 2.5 | 48,642 | 2.5 |
| 2030 | 1,037 | 1.6 | 6,832 | 1.6 | 83,361 | 1.6 | 1,106 | 0.6 | 48,938 | 0.6 |
| 2035 | 1,045 | 0.8 | 6,885 | 0.8 | 84,014 | 0.8 | 1,107 | 0.0 | 48,954 | 0.0 |
| 2040 | 1,048 | 0.3 | 6,904 | 0.3 | 84,238 | 0.3 | 1,100 | -0.6 | 48,662 | -0.6 |
| 2045 | 1,049 | 0.1 | 6,912 | 0.1 | 84,335 | 0.1 | 1,089 | -1.0 | 48,171 | -1.0 |
| 2050 | 1,051 | 0.2 | 6,925 | 0.2 | 84,493 | 0.2 | 1,079 | -1.0 | 47,711 | -1.0 |

Note: The population projections for Kosciusko and Noble Counties were obtained from the Indiana Business Research Center. No additional projection data was available for the smaller jurisdictions. After reviewing the available data and population history, it was assumed that North Webster and Tippecanoe and Washington Townships will have population changes commensurate with their respective counties.

From the Indiana Business Research Center, the latest population estimate of North Webster is 1,002 people. Based on the above chart, North Webster population is projected to increase by 4.6% by 2043.

The future residential development in the East Webster Lake area is anticipated to be limited due to the presence of natural resources such as wetlands, rivers, etc. along the undeveloped shorelines. However, some growth is anticipated due to infill development of the existing undeveloped platted lots in the existing developments in these service areas. There are no planned developments in the service area from any jurisdiction over the 20-year planning period. More information on the future wastewater flows and wasteloads can be found in Section 2.2.

The service area includes mostly residential properties; it is anticipated that the waste stream will be typical, household domestic strength wastewater. Therefore, any future commercial/industrial development of this service area must be monitored to ensure the wasteload parameters are maintained within the above assumption. It should be noted that this is a typical approach when planning for future growth of commercial/industrial areas.

Based on the population projections, flow estimates, and current WWTP information, the following are 20-year capacity needs for the WWTP.

Table 10 – Design Criteria

| Design Criteria | Current Influent Conditions | 20-Year Influent Conditions | Existing Infrastructure Capacity |
|---------------------------|------------------------------------|------------------------------------|---|
| Population, North Webster | 998 | 1002 | |
| Daily Average Flow | 0.366 | 0.397 | 0.571 |
| Peak Hourly Flow | 0.410 | 0.480 | 2.16 |
| BOD Loading, lbs | 115 | 320 | |
| TSS Loading, lbs | 120 | 380 | |
| NH3 Loading, lbs | 16 | 85 | |
| P Loading, lbs | 4 | 10 | |

Based on projected flows from East Webster Lake and the existing flows for both the Knapp Lake Lift Station and North Webster Lift Station, the proposed lift station capacities and information are provided in the table below.

Table 11 – Proposed Lift Station Data

| Pump Station No. | No. of Pumps | Proposed Pump Capacity (GPM) | Average Flow (GPD) | Peak Day (GPD) | Average Runtime (HR/DAY) | Peak Day Runtime (HR/DAY) |
|--|---------------------|-------------------------------------|---------------------------|-----------------------|---------------------------------|----------------------------------|
| Knapp Lake Lift Station | Duplex | 175 | 11,223 | 46,929 | 1.07 | 4.47 |
| East Webster Lake Lift Station (Proposed) | Duplex | 300 | 40,075 | 158,026 | 2.34 | 9.21 |
| North Webster Lift Station (Lift Station No. 10) | Triplex | 750 | 341,946 | 1,112,814 | 7.12 | 23.18 |

The East Webster Lift Station is proposed to be approximately 286 GPM (sizing up to 300 GPM), which includes full buildout of the lake area. Based on an analysis of Lift Station No. 10 with the addition of East Webster Lake flows, Lift Station No. 10 is expected to have a flow rate of 730 GPM based on the system pump curve. However, in the event that two (2) pumps run at once, the flow rate will be approximately 830 GPM, with one (1) pump still on standby. Therefore, the North Webster Lift Station (No. 10) has sufficient capacity to receive flows from East Webster.

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2.2 FUTURE WASTEWATER SITUATION – NORTH WEBSTER WWTP

As mentioned previously, the preferred wastewater treatment alternative would connect to the existing force main from the Knapp Lake Area Conservancy District and flow to the North Webster WWTP.

The Preliminary Effluent Limitations (PEL) are assumed to be the same as what is required for the existing facility. The proposed limitations are provided in Table 12 below.

Table 12 – Proposed Preliminary Effluent Limitations

| Parameter | Quantity/Loading (lb/d) | | Concentration (mg/L) | |
|---------------------------|--|-------------|----------------------|-------------|
| | Monthly Avg. | Weekly Avg. | Monthly Avg. | Weekly Avg. |
| CBOD ₅ | 48 | 71 | 10 | 15 |
| TSS | 57 | 86 | 12 | 18 |
| Ammonia-Nitrogen (Summer) | 5.2 | 7.6 | 1.1 | 1.6 |
| Ammonia-Nitrogen (Winter) | 7.6 | 11.4 | 1.6 | 2.4 |
| pH | 6.0 (min) to 9.0 (max.) | | | |
| Dissolved Oxygen | 6.0 mg/L daily min. limit | | | |
| E. Coli | 125 count/100 mL monthly, 235 count/100mL daily max. | | | |

The current wastewater treatment plant for North Webster is expected to handle the flows from the East Webster Lake area utilizing existing capacity, so the project area and outfall will be the same.

Based on the existing flow and proposed flow from Knapp Lake and East Webster Lake, Table 13 below outlines the future flow and waste load requirements for the existing North Webster WWTP.

Table 13 – Future Wastewater Flows and Waste Load

| Future Waste Load Summary | | | | | | | | | | |
|---------------------------|--------------|--------------|---------------|--------------|--------------|--------------|--------------|-------------|---------------|-------------|
| Service Area Description | Flow (MGD) | | CBOD (at ADF) | | TSS (at ADF) | | NH3 (at ADF) | | Phos (at ADF) | |
| | ADF | Peak | mg/L | lbs/day | mg/L | lbs/day | mg/L | lbs/day | mg/L | lbs/day |
| East Webster Lake | 0.019 | 0.039 | 200 | 32.2 | 200 | 32.2 | 42 | 6.8 | 8.0 | 1.3 |
| North Webster WWTP | 0.366 | 0.410 | 314 | 381.3 | 317.5 | 391.4 | 57.3 | 53.6 | 11.4 | 11.8 |
| Total | 0.385 | 0.448 | | 413.5 | | 423.6 | | 60.3 | | 13.1 |

3. EVALUATION OF ALTERNATIVES

Several alternatives were considered for the wastewater collection and treatment system for the considered service areas. Both construction and non-construction costs were also developed for these alternatives. It should be noted that the costs provided for these alternatives are for planning and budgeting purposes only and actual costs may vary depending on the final design. The preliminary costs provided were developed based on using past bids for projects of similar nature, engineering judgement, and vendor quotes, which can change based on the actual design.

Further, the general state of the economy, construction market during the bidding will have an impact on the actual costs.

Initially, wastewater treatment alternatives were considered as a part of the wastewater services as well. However, a standalone treatment system for this service area was not considered as part of this Report. The proposed District WWTP currently operates well under their average design flow capacity and the construction and maintenance of a new treatment facility would not be financially feasible for this service area alone when the alternative of regionalizing is available.

There are a number of wastewater collection and treatment system design concepts that could be applied for the considered service areas. However, the most effective alternatives will be some version of proven and reliable collection and treatment system; as well as a system that the District staff is familiar with and currently utilizes in other areas being served by the District.

Provided the above, the following alternatives were evaluated further in subsequent sections:

- No Action
- Alternative No. 1 – Collection System – Gravity Collection System
- Alternative No. 2 – Collection System – Pressure Collection System
- Alternative No. 3 – Wastewater Treatment – Utilize North Webster WWTP
- Alternative No. 4 – Wastewater Treatment – New WWTP

3.1 COLLECTION SYSTEM ALTERNATIVES

3.1.1 NO ACTION

The “No Action” alternative suggests that the District do nothing to tend to their wastewater infrastructure needs for the long-term future.

This alternative also implies that the District, local officials, and end-users take no action towards protecting their private wells from inadequate septic systems and take no action to improve health and safety within the service area, or to protect their investments in their property values. With the need for wastewater service becoming an acute issue, the alternative to do nothing in this circumstance appears to be unfeasible.

Though this alternative results in no apparent capital costs, it is not a feasible solution indefinitely. Therefore, this alternative should not be considered further.

3.1.2 ALTERNATIVE NO. 1 - COLLECTION SYSTEM – GRAVITY COLLECTION SYSTEM

The gravity system consists of sewer lines installed at a specific grade based on the size of the pipe(s) to prevent deposition of solids at low velocities. The minimum gravity system line is 8" and typically installed at a depth of 5 to 30 feet depending on site topography. Additionally, manholes, typically spaced 350 to 400 feet, are necessary when there is a change in slope and/or direction, in addition to serving as an access point for maintenance. In general, a gravity system offers limited flexibility in construction as it requires that slope and alignment be maintained. Change in either typically leads to additional manholes, construction effort, and general disturbance.

The gravity sewer will also require lift stations and force mains to transport waste from the low point of the gravity sewer to the next downstream sewer. With this alternative, approximately 12 small lift stations would be needed in order to properly convey the wastewater flow throughout the collection system.

The environmental impacts and restoration associated with construction of a gravity system are typically higher due to the open-cut excavation method utilized for installation, adding paving and restoration costs, and requiring large equipment for deep trenches.

See Figure 5 for the gravity sewer alternative.

The estimated construction costs for this alternative are provided in Table 14. The estimated operational, maintenance, and replacement (O, M & R) costs for this alternative are provided in Table 15.

Table 14 – Capital Costs – Alternative No. 1 – Gravity Sewer System

| ENGINEER'S PRE-DESIGN CONSTRUCTION ESTIMATE – GRAVITY SEWER SYSTEM | | | | | | |
|---|--------------------|------|---|--------------|--------------------|--------------------|
| Item No. | Estimated Quantity | Unit | Description | Unit Price | Extension | Salvage Value |
| 1 | 6,150 | LFT | 6" SDR 35 PVC Sanitary Service Lateral | \$60.00 | \$369,000.00 | \$221,400.00 |
| 2 | 9,800 | LFT | 8" SDR 35 PVC Sanitary Sewer, Main Line | \$75.00 | \$735,000.00 | \$441,000.00 |
| 3 | 4,700 | LFT | 1.5" HDPE Force Main | \$24.00 | \$112,800.00 | \$67,680.00 |
| 4 | 3,000 | LFT | 2" HDPE Force Main | \$25.00 | \$75,000.00 | \$45,000.00 |
| 5 | 1,900 | LFT | 3" HDPE Force Main | \$28.00 | \$53,200.00 | \$31,920.00 |
| 6 | 700 | LFT | 4" HDPE Force Main | \$30.00 | \$21,000.00 | \$12,600.00 |
| 7 | 1,300 | LFT | 6" HDPE Force Main | \$40.00 | \$52,000.00 | \$31,200.00 |
| 8 | 4 | EA | Air Release Valve Station | \$10,000.00 | \$40,000.00 | \$20,000.00 |
| 9 | 5 | EA | Flushing Station | \$8,500.00 | \$42,500.00 | \$21,250.00 |
| 10 | 3 | EA | Pipe Junction | \$1,500.00 | \$4,500.00 | \$2,250.00 |
| 11 | 9 | EA | Isolation Valves | \$1,000.00 | \$9,000.00 | \$4,500.00 |
| 12 | 205 | EA | 8" x 6" Sanitary Tee | \$300.00 | \$61,500.00 | \$36,900.00 |
| 13 | 205 | EA | 6" Sanitary Cleanout & Plug | \$350.00 | \$71,750.00 | \$35,875.00 |
| 14 | 57 | EA | 4' Dia. Sanitary Manhole | \$7,000.00 | \$399,000.00 | \$199,500.00 |
| 15 | 8 | EA | Sanitary Lift station (10-50 GPM) | \$50,000.00 | \$400,000.00 | \$200,000.00 |
| 16 | 4 | EA | Sanitary Lift station (50-100 GPM) | \$100,000.00 | \$400,000.00 | |
| 17 | 1 | EA | Sanitary Lift station (250-300 GPM) | \$600,000.00 | \$600,000.00 | \$300,000.00 |
| 18 | 7,000 | SYD | Asphalt Pavement Restoration | \$75.00 | \$525,000.00 | |
| 19 | 6000 | SYD | Stone Pavement Restoration | \$50.00 | \$300,000.00 | |
| 20 | 21,000 | CYD | Structural Backfill | \$20.00 | \$420,000.00 | |
| 21 | 1 | LSUM | Maintenance of Traffic | \$30,000.00 | \$30,000.00 | |
| 22 | 1 | LSUM | Erosion Control | \$30,000.00 | \$30,000.00 | |
| 23 | 1 | LSUM | Landscape Restoration | \$75,000.00 | \$75,000.00 | |
| 24 | 1 | LSUM | Mobilization/ Demobilization (5% Max.) | \$250,000.00 | \$250,000.00 | |
| Total (rounded up to nearest \$1,000) | | | | | \$5,077,000 | \$1,672,000 |
| Construction Contingency (10%) | | | | | \$510,000 | |
| Estimated Construction Costs (rounded up to nearest \$1,000) | | | | | \$5,587,000 | |

Table 15 – O, M, & R Costs – Alternative No. 1 – Gravity Sewer System

| GRAVITY SEWER O, M & R COSTS | | |
|------------------------------|--|------------------|
| Item No. | Description | Annual Cost |
| | Gravity Sewer O&M Costs | |
| 1 | Locate Services | \$10,000 |
| 2 | Lift Station Electrical ⁽¹⁾ | \$28,000 |
| 3 | Lift station Annual SCADA Contracts | \$5,000 |
| 4 | Lift Station Pump Repair/Maintenance ⁽²⁾ | \$14,000 |
| 5 | Lift Station Maintenance, Labor ⁽³⁾ | \$27,100 |
| 6 | Emergency LS Call-Outs ⁽⁴⁾ | \$4,700 |
| 7 | Misc. Admin, Insurance, Etc. | \$15,000 |
| 8 | Emergency Allowance | \$10,000 |
| 9 | Treatment Costs | \$25,000 |
| | Subtotal (rounded up to nearest \$1,000) | \$139,000 |
| | | |
| | Gravity Sewer Short Term Asset Replacement Costs | |
| 10 | Lift Station Pump Replacement ⁽⁵⁾ | \$7,600 |
| 11 | Lift Station Control Panel Replacement ⁽⁶⁾ | \$10,700 |
| | Subtotal (rounded up to nearest \$1,000) | \$19,000 |
| | Total Annual O, M & R Costs (rounded up to nearest \$1,000) | \$158,000 |

⁽¹⁾ $((.746 \text{ kw/hp} \times \text{___ hp} \times \text{___ GPD} \times 365 \text{ days/yr} \times \$0.10/\text{kwhr}) / (0.75 \text{ motor eff} \times \text{___ gal/min} \times 60 \text{ min/hr})) + \$30 \text{ per month for each lift station}$

⁽²⁾ Assumes \$2,000 per year per large lift station and \$1,000 per year per 12 intermediate lift stations

⁽³⁾ Assumes 1 person spending one hour per week at each lift station, 52 weeks per year @ \$40/hour including benefits, etc.

⁽⁴⁾ Assumes 1 hour of callouts per every other month per station @ \$60/hour including benefits, etc.

⁽⁵⁾ Assumes both pumps at each intermediate lift stations will need to be replaced every 15 years @ \$3,500 per pump and both pumps at the large lift station will need to be replaced every 15 years @ \$15,000 per pump

⁽⁶⁾ Assumes the control panel at each intermediate lift stations will need to be replaced every 15 years @ \$10,000 per control panel and the control panel at the large lift station will need to be replaced every 15 years @ \$40,000 per control panel

3.1.3 ALTERNATIVE NO. 2 - COLLECTION SYSTEM – PRESSURE COLLECTION SYSTEM

The pressure system consists of prefabricated grinder lift station units installed on each or every other property. These units are equipped with an electrically powered grinder pump that receives gravity flow from the building sewer, grinds the wastewater with special rotating cutter blades, and forces the liquid slurry under pressure through a small diameter pressure main network that typically ranges from 1.25" to 6". A pressure system is a more cost-effective means of wastewater collection from areas not easily accessible by other collection system alternatives.

A pressure system is technically feasible and reliable and can be implemented. Since the pressure system can be installed using directional drilling method, the environmental impacts and restoration associated with construction of this system are minimized as it results in reduced street paving and restoration costs.

See Figure 6 for the pressure sewer alternative.

The estimated construction costs for this alternative are provided in Table 16. The estimated operational, maintenance, and replacement (O, M & R) costs for this alternative are provided in Table 17.

Table 16 – Capital Costs – Alternative No. 2 – Pressure Sewer System

| ENGINEER'S PRE-DESIGN CONSTRUCTION ESTIMATE - PRESSURE SEWER SYSTEM | | | | | | |
|---|--------------------|------|---|--------------|--------------------|--------------------|
| Item No. | Estimated Quantity | Unit | Description | Unit Price | Extension | Salvage Value |
| 1 | 13,200 | LFT | 1-1/4" HDPE Pressure Sewer, Service Line | \$22.00 | \$290,400.00 | \$174,240.00 |
| 2 | 600 | LFT | 1-1/2" HDPE Pressure Sewer, Main Line | \$24.00 | \$14,400.00 | \$8,640.00 |
| 3 | 2,800 | LFT | 2" HDPE DR 11 (IPS) Pressure Sewer, Main Line | \$25.00 | \$70,000.00 | \$42,000.00 |
| 4 | 5,200 | LFT | 3" HDPE DR 11 (IPS) Pressure Sewer, Main Line | \$28.00 | \$145,600.00 | \$87,360.00 |
| 5 | 5,900 | LFT | 4" HDPE DR 11 (IPS) Pressure Sewer, Main Line | \$30.00 | \$177,000.00 | \$106,200.00 |
| 6 | 88 | EA | Grinder Station, Type I, Standard Depth - Equipment | \$3,800.00 | \$334,400.00 | \$66,880.00 |
| 7 | 88 | EA | Grinder Station, Type I, Standard Depth - Installation | \$3,500.00 | \$308,000.00 | |
| 8 | 55 | EA | Grinder Station, Type II, Standard Depth - Equipment | \$4,000.00 | \$220,000.00 | \$44,000.00 |
| 9 | 55 | EA | Grinder Station, Type II, Standard Depth - Installation | \$4,500.00 | \$247,500.00 | |
| 10 | 4 | EA | Grinder Station, Type IV - Equipment | \$15,000.00 | \$60,000.00 | \$12,000.00 |
| 11 | 4 | EA | Grinder Station, Type IV - Installation | \$7,500.00 | \$30,000.00 | |
| 12 | 30 | VFT | Extension for Grinder Pump | \$450.00 | \$13,500.00 | |
| 13 | 10 | EA | Flushing Station | \$8,500.00 | \$85,000.00 | \$42,500.00 |
| 14 | 1 | EA | Hybrid Station | \$9,000.00 | \$9,000.00 | \$4,500.00 |
| 15 | 10 | EA | Pipe Junction | \$1,500.00 | \$15,000.00 | \$7,500.00 |
| 16 | 30 | EA | Isolation Valves | \$1,000.00 | \$30,000.00 | \$15,000.00 |
| 17 | 8 | EA | Air Release Valve Station | \$10,000.00 | \$80,000.00 | \$40,000.00 |
| 18 | 147 | EA | Curb Stop/Check Valve Assembly | \$1,500.00 | \$220,500.00 | \$44,100.00 |
| 19 | 88 | EA | Alarm Disconnect Panels - Grinder Station Type I | \$1,500.00 | \$132,000.00 | \$26,400.00 |
| 20 | 55 | EA | Alarm Disconnect Panels - Grinder Station Type II | \$1,500.00 | \$82,500.00 | \$16,500.00 |
| 21 | 4 | EA | Alarm Disconnect Panels - Grinder Station Type IV | \$3,000.00 | \$12,000.00 | \$2,400.00 |
| 22 | 44,100 | LFT | Electrical Conduit & Conductors | \$10.00 | \$441,000.00 | \$264,600.00 |
| 23 | 49 | LFT | Electrical Risers | \$6,000.00 | \$294,000.00 | \$98,000.00 |
| 24 | 5 | EA | Spare Grinder Motor/Pump | \$3,000.00 | \$15,000.00 | \$3,000.00 |
| 25 | 5 | EA | Spare Alarm Disconnect Panel | \$1,500.00 | \$7,500.00 | \$1,500.00 |
| 26 | 1 | LSUM | Sanitary Lift station (250-300 GPM) | \$600,000.00 | \$600,000.00 | \$300,000.00 |
| 27 | 500 | SYD | Asphalt Pavement Restoration | \$100.00 | \$50,000.00 | |
| 28 | 1,000 | SYD | Stone Pavement Restoration | \$25.00 | \$25,000.00 | |
| 29 | 1 | LSUM | Erosion Control | \$10,000.00 | \$10,000.00 | |
| 30 | 1 | LSUM | Landscape Restoration & Seeding | \$150,000.00 | \$150,000.00 | |
| 31 | 1 | LSUM | Maintenance of Traffic | \$30,000.00 | \$30,000.00 | |
| 32 | 1 | LSUM | Mobilization/ Demobilization (5% Max.) | \$210,000.00 | \$210,000.00 | |
| Total (rounded up to nearest \$1,000) | | | | | \$4,410,000 | \$1,408,000 |
| Construction Contingency (10%) | | | | | \$441,000 | |
| Estimated Construction Costs (rounded up to nearest \$1,000) | | | | | \$4,851,000 | |

Table 17 – O, M & R Costs – Alternative No. 2 – Pressure Sewer System

| PRESSURE SEWER O, M & R COSTS | | |
|-------------------------------|--|------------------|
| Item No. | Description | Annual Cost |
| | Pressure Sewer O&M Costs | |
| 1 | Locate Services | \$10,000 |
| 2 | Lift Station Electrical ⁽¹⁾ | \$2,500 |
| 3 | Lift station Annual SCADA Contracts | \$5,000 |
| 4 | Lift Station Pump Repair/Maintenance ⁽²⁾ | \$2,000 |
| 5 | Lift Station Maintenance, Labor ⁽³⁾ | \$2,100 |
| 6 | Emergency LS Call-Outs ⁽⁴⁾ | \$400 |
| 7 | Grinder Station Electrical ⁽⁵⁾ | \$19,100 |
| 8 | Pressure System Maintenance and Repairs, Labor ⁽⁶⁾ | \$31,200 |
| 9 | Misc Collection System, Parts | \$10,000 |
| 10 | Misc. Admin, Insurance, Etc. | \$15,000 |
| 11 | Emergency Allowance | \$10,000 |
| 12 | Treatment Costs | \$25,000 |
| | Subtotal (rounded up to nearest \$1,000) | \$133,000 |
| | Pressure Sewer Short Term Asset Replacement Costs | |
| 13 | Grinder Pump Core Replacements ⁽⁷⁾ | \$22,100 |
| 14 | Control Panel Spares, Other Misc. Replacements | \$5,000 |
| 15 | Lift Station Pump Replacements ⁽⁸⁾ | \$2,000 |
| 16 | Lift Station Control Panel Replacement ⁽⁹⁾ | \$2,700 |
| | Subtotal (rounded up to nearest \$1,000) | \$32,000 |
| | Total Annual O, M & R Costs (rounded up to nearest \$1,000) | \$165,000 |

⁽¹⁾ $((.746 \text{ kw/hp} \times \text{___ hp} \times \text{___ GPD} \times 365 \text{ days/yr} \times \$0.10/\text{kwhr}) / (0.75 \text{ motor eff} \times \text{___ gal/min} \times 60 \text{ min/hr})) + \$30 \text{ per month per each lift station}$

⁽²⁾ Assumes \$2,000 per year per lift station

⁽³⁾ Assumes 1 person spending one hour per week at each lift station, 52 weeks per year @ \$40/hour including benefits, etc.

⁽⁴⁾ Assumes 1 hour of callouts per every other month per station @ \$60/hour including benefits, etc.

⁽⁵⁾ $((147 \text{ pumps} \times 1.21 \text{ kw/hp} \times 1 \text{ hp} \times 175 \text{ GPD} \times 365 \text{ days/yr} \times 0.10 \text{ kwhr}) / (0.75 \text{ motor eff} \times 11 \text{ gal/min} \times 60 \text{ min/hr})) + \$30 \text{ per month per electrical riser}$

⁽⁶⁾ Assumes 15 manhours per week @ \$40/ hour x 52 weeks per year

⁽⁷⁾ Assumes 5% replacement (of installed total of 147 units) every year @ \$3,000 each

⁽⁸⁾ Assumes both pumps at the lift station will need to be replaced every 15 years @ \$15,000 per pump

⁽⁹⁾ Assumes the control panel at the lift station will need to be replaced every 15 years @ \$40,000 per control panel

3.2 WASTEWATER TREATMENT PLANT ALTERNATIVES

3.2.1 ALTERNATIVE NO. 3 – WASTEWATER TREATMENT – UTILIZE N. WEBSTER WWTP

Based on review of nearby wastewater collection and treatment system, there is one alternative that could be considered for treatment of the service area flows.

The existing North Webster WWTP is located on the west end of the town off E 650 N, on Mid Lake Drive. The District currently owns and operates the facility which is designed to process 0.571 MGD. The facility is approximately 2 miles west of the proposed service area.

For this alternative, the wastewater collected from the East Webster Lake service area would be conveyed through pressure sewer from the individual users to a lift station and force main that will connect to the District's existing the Knapp Lake Area Conservancy District force main, where flow will then continue to the North Webster WWTP Lift Station.

Following review of information, the North Webster WWTP as currently constructed appears to have adequate capacity to handle the proposed service area. The current facility is permitted at 0.571 MGD. The recent expansion in 2016 to include the Knapp Lake Area Conservancy District also contemplated a future expansion to include the proposed East Webster Lake service area. As previously mentioned, the interlocal agreement between North Webster and the Knapp Lake Area Conservancy District allows Knapp Lake to send up to 37,350 gallons per day of wastewater to the North Webster System.

Additional costs for treatment were included in the O, M & R costs in tables 15 & 17 above.

3.2.2 ALTERNATIVE NO. 4 – WASTEWATER TREATMENT – NEW WWTP

Based on the availability of existing capacity at the nearby North Webster WWTP to accommodate the service area, construction of a new WWTP exclusively for the service area is not feasible. The siting and construction of a new plant alone would require several millions more in capital investments, not including the ongoing operation, maintenance, and repair costs to retain full-time staff and maintain constant operation. In light of this, a new WWTP alternative is removed from consideration.

3.3 COMPARISON OF ALTERNATIVES

Table 18 below provides a summary of project costs for each of the alternatives described above. The economic analysis for the various alternatives is displayed in terms of the present worth (life cycle) of each alternative for both the WWTP and the interceptor sewer over the funding agency-required 20-year planning period. Present worth calculations were performed using the required federal discount rate (2.0%) of OMB Circular A-094 for establishing the present worth of the uniform series of O, M & R values (in today's dollars) and the salvage values. This rate is the updated value for 2023 as of December 2022. The results are summarized in Table 18 below.

Table 18 – Summarized Costs for All Alternatives

| Collection System Alternatives | | | |
|--------------------------------|--------------------|----------------|---------------|
| | Construction Costs | O, M & R Costs | Salvage Value |
| Alt. No. 1 - Gravity Sewer | \$5,587,000 | \$158,000 | \$1,672,000 |
| Alt. No. 2 - Pressure Sewer | \$4,851,000 | \$165,000 | \$1,408,000 |

Table 19 – Present Worth Cost Analysis

| PRESENT WORTH ANALYSIS OF ALTERNATIVES | | |
|---|----------------------------|-----------------------------|
| Cost Summary | Alt. No. 1 - Gravity Sewer | Alt. No. 2 - Pressure Sewer |
| Capital Cost (w/ contingency) | \$5,587,000.00 | \$4,851,000.00 |
| Annual O, M & R Cost | \$158,000.00 | \$165,000.00 |
| Salvage Value | \$1,672,000.00 | \$1,408,000.00 |
| Present Worth Analysis (20 Yrs @ 2.0% Interest) | | |
| Project Cost | \$5,587,000.00 | \$4,851,000.00 |
| PW of Annual O, M & R ⁽¹⁾ | \$2,583,526.47 | \$2,697,986.50 |
| PW of Salvage ⁽²⁾ | \$1,125,208.07 | \$947,543.64 |
| Present Worth of Costs ⁽³⁾ | \$7,045,318.40 | \$6,601,442.86 |

- (1) PW Factor = 16.351 using the formula $P=A[\frac{1-(1+i)^{-n}}{i}]$
- (2) PW Factor = 0.6730 using the formula $P=F(1+i)^{-n}$
- (3) Total PW = Construction Cost + PW of O, M & R – PW of Salvage

From this analysis, Alternative No. 2 – Pressure Sewer has the lowest present worth analysis for the 20-year planning period. This means that the cost for each project is evaluated based on paying a 2% interest rate over the next 20 years, and selecting Alternative No. 2 will overall cost the District less than Alternative No. 1. In addition, Alternative No. 3 will also be a lower present worth than Alternative No. 4, due to the fact that Alternative No. 3 will not require any costs to connect to an existing WWTP or large costs for operation and maintenance since an existing facility will be utilized.

4. SELECTED PLAN & PROPOSED PROJECT

Based on the review of the alternatives considered, a combination of Alternative No. 2 – Pressure Collection System and Alternative No. 3 – Utilize the North Webster WWTP are the recommended alternatives due to the reasons listed below:

- The pressure system would eliminate the need for extensive open-cut excavation required for gravity collection.
- The projected costs of pressure sewer systems are less than the projected costs of the gravity system.
- Utilizing the existing capacity at the North Webster WWTP effectively requires zero capital costs, compared to immense capital costs for a new WWTP.
- Utilizing the existing WWTP eliminates the need for ongoing staffing and maintenance of a separate plant exclusively for the service area.
- The present worth of the pressure collection improvements is lower than the present worth of the gravity collection system.
- Many of the residents have septic systems that have failed or are undocumented. Septic systems that fail can cause groundwater contamination and seep into private drinking wells. A pressure sewer system will eliminate existing septic systems and eliminate the potential for groundwater or well contamination.

As a part of this recommended project, one wastewater lift station will be constructed to transport collected wastewater. The lift station will be constructed on Epworth Forest Rd west of N 950 E to serve the entire service area of East Webster Lake. The pressure sewer collecting from the southern limits of the service area will connect into the lift station and tie into the existing force main from the Knapp Lake Area Conservancy District. The flow from Knapp Lake will also be conveyed to the lift station. This lift station will be rated for 300 GPM, which is a sufficient size to receive flows from both Knapp Lake and East Webster Lake. This lift station will then convey flow to the existing North Webster Lift station via force main.

The general installation guidelines and details for grinders are listed below. These are for typical single-family households and small commercial properties. Larger facilities (such as the mobile home park) may have different guidelines. Grinder stations will be located on or adjacent to the side property lines wherever compatible with existing structures and improvements. Grinder stations will be shared with an adjacent property owner where feasible. Whether a single or shared grinder, each customer will have a lateral connection from their home to the grinder station, which will usually be less than 100-feet.

The majority of the collection system is planned to be constructed utilizing horizontal drilling. There may be a few small segments that may be constructed via open excavation. Alternatives for wastewater service will be evaluated as to feasibility of construction, financial considerations, long-term service, etc. The table below outlines the total project costs for the recommended alternative. There are areas where easements may need to be acquired due to the construction of the lift station and pressure sewer segments. However, the majority of the project will be installed in previously disturbed right-of-way.

It is understood that the actual land value/cost as presented in the detailed cost estimate is not eligible for SRF reimbursement. It is anticipated that the District via its customers will be directly responsible for these costs.

The District will acquire additional operation and maintenance costs due to the additional grinder stations and lift station that are proposed for this project.

4.1 PROJECT SCHEDULE

The anticipated project schedule is as follows:

Table 20 – Project Schedule

| Task | Date |
|--------------------------------------|-------------|
| PER Public hearing | Jan-24 |
| PER Submittal | Apr-24 |
| Completion of Environmental Studies | Apr-24 |
| Start Design | Nov-24 |
| PER Approval | Oct-24 |
| Land and Easement Acquisition | Jun-25 |
| IDEM Construction Permit Submittal | Jun-25 |
| IDEM Construction Permit Approval | Aug-25 |
| Complete Design | Jun-25 |
| Advertisement for Bids | Jul-25 |
| Receive Bids | Aug-25 |
| Loan Closing | Nov-25 |
| Contract Award | Dec-25 |
| Begin Construction/Notice to Proceed | Jan-26 |
| Construction Completion | Apr-27 |
| Begin Operations | May-27 |

4.2 PERMITS REQUIRED

It is anticipated that the following permits will be required as a part of this project:

- IDEM Sanitary Sewer Construction Permit
- Kosciusko County Highway Department Right-of-Way/Road Cut Permit
- Kosciusko County Drainage Board Regulated Drain Crossing Permit
- Indiana Rule 5 Stormwater Erosion Control Permit
- IDEM Section 401 Water Quality Certification Regional General Permit
- IDNR Flood Control Permit

5. EVALUATION OF ENVIRONMENTAL IMPACTS

The purpose of this section is to identify, review, and discuss environmental impacts associated with implementation of the selected plan recommendations.

5.1 LOCATION

The project area is located in northeastern Kosciusko County, Indiana, in Sections 12-14 of Township 33 North, Range 7 East, Tippecanoe Township in Kosciusko County, Indiana. The proposed project area includes the eastern section of Webster Lake – the area is roughly bounded by Epworth Forest Rd to the north, N 950 E and Backwater Rd to the east, and the Backwaters Public Access Site to the south. Figure 1 provides an overview of the project service area.

The proposed project will include the following:

- A new lift station along Epworth Forest Rd, near Webster Bay mobile home park.
- Force mains and pressure sewer will be extended to the existing force main along Epworth Forest Rd that was built as part of the Knapp Lake Area Conservancy District.
- A new pressure sewer system serving the East Webster Lake area – approximately 199 new customers. The East Webster Lake pressure sewer will connect to the proposed lift station along Epworth Forest Rd. From here, the wastewater flow will connect to the existing force main along Epworth Forest Rd and continue west to the existing North Webster WWTP.

The proposed wastewater collection system will be mainly constructed within the existing rights-of-way. There are approximately six segments of the collection system which may require easements through existing undeveloped areas: five along informal but publicly accessible and regularly utilized access roads, and the other through an undeveloped section of the aforementioned privately-owned mobile home park. In these segments, the District will need to acquire easements for the collection system. Blanket easements will also be required for the installation of the grinder pump units on individual lots, where applicable. The required property rights will be secured prior to closing on the SRF financing package.

5.2 DISTURBED AND UNDISTURBED LAND

Projects of this nature and scale involve land-disturbing activities. The project will be designed to keep as much of the pipeline as possible within the previously disturbed roadway right-of-way. Where possible, the project improvements will be located within the pavement limits, or within the right-of-way. The Undisturbed Land and Easements Map on Figure 7 shows the portions of the project that will require easements to be acquired or where the pressure sewer will be installed outside of project right-of-way.

The proposed lift station site will be on a tract of land approximately 100-feet by 100-feet and adjacent to the existing roadway. It is anticipated that the lift station site will be disturbed with a large excavation occurring for the wet well and valve vault. The wet well will be about 15 to 20' deep, while the valve vault will be about 8' deep.

The grinder stations will be installed at approximately 8-feet deep with approximately a 6-foot by 10-foot excavation. The lid will extend from 2-inches to 6-inches above grade. Pressure sewer

laterals from the grinder station to the mainline will be installed at approximately 6-feet deep and will have a 5-foot by 5-foot excavation. The grinder stations will be connected to an electrical service. The electrical conduit will be directionally drilled and pulled with the pressure sewer. Next to the grinder stations will be 4-inch by 4-inch wood posts, extending 3-feet to 4-feet above grade. This is where the grinder station electrical alarm panel will be located.

The majority of the proposed wastewater collection system will be constructed within the existing public road apparent right-of-way just under the pavement or within five (5) feet of the pavement. Some segments of county roads do not have documented right-of-way. In these segments, the District may need to acquire easements for the sewer system that will be located within the apparent right-of-way.

The force mains and pressure sewer will be required to be installed using horizontal directional drilling, or other appropriate trenchless method, to minimize land disturbance and restoration costs.

The main pressure sewer lines will be installed in or adjacent to existing roadway systems controlled by Kosciusko County or previously disturbed right-of-way (asphalt, stone, stone shoulders, grassed shoulders, grassed roadside drainage swales), except for segments specified on Figure 7.

The pressure sewer will be installed using the directional drill method of installation, which will minimize land disturbance activities. It is anticipated that there will be excavations at each crossover connection point along the pressure sewer, service lateral connection point, each manhole structure, junction points, ends of lines, and air release valve locations.

The approximate disturbed area for each excavation will be as follows:

Table 21 – Summary of Excavations

| Description | Area |
|--|---------------------|
| Manhole Structure | 8' x 8' x 6' depth |
| Pressure sewer Lateral connection at main line | 5' x 5' x 6' depth |
| Package grinder lift station | 6' x 10' x 8' depth |
| Electrical riser | 2' x 2' x 3' depth |
| Crossover connection | 5' x 8' x 6' depth |
| Air Release Valve Structure | 8' x 8' x 6' depth |
| Launch/Receive Points | 6' x 20' x 6' depth |
| Tie-in/Crossover Connection | 5' x 8' x 6' depth |

In addition, some surface disturbance can be expected with the excavators and directional drill machines used for a project of this nature. The approximate footprint of the drilling machine and resulting disturbed area would be about 8' x 20'. This disturbance would typically occur at structure locations and at crossover connection locations.

Erosion control measures will be required via project specifications and enforced throughout the construction process. The contractor will be required to restore disturbed areas to preconstruction conditions or better prior to project completion.

5.3 HISTORIC AND ARCHAEOLOGICAL RESOURCES

The project will not affect curbs, brick streets, or sidewalks. Some yards and possibly street-side yard plantings may be affected by construction of the project. The contractor will be required to promptly restore disturbed yards and street-side plantings as portions of the project are completed. Pre-construction videos of the construction area will be required from the contractor so that any disputes about the nature of the construction area after the project versus prior to the project can be suitably resolved.

An Archaeological Review and Reconnaissance Study and a Historical and Architectural Resources Review will be undertaken soon. Results of this investigation will be included in Appendix F. Figure 8 presents the current understanding of historical and archaeological sites in the project area – no historic or archaeological site within the service area are currently anticipated based on publicly available IHBBC data.

5.4 WETLANDS

There are portions of this project that will take place within or near wetlands. All measures will be taken to avoid existing wetlands, which can be planned for with the use of directional drilling. Total wetland disturbance will be confirmed with the wetland study. Appropriate permits will be submitted with the proposed crossings. The disturbed wetland area will be restored with native plantings appropriate for the wetland areas. The use of horizontal directional drill method of installation will greatly reduce the disturbed areas in general and allow the force main to be installed adjacent to wetlands without disturbing the wetlands. During the early design phase of the project, the Engineer will coordinate with the appropriate agencies to identify areas of concern. Once identified specific area near or adjacent to wetlands will be identified on the design drawings as no work or no staging zones.

Areas where the proposed sewer may be installed in wetlands are listed below:

- EMS W17C Lane
- Portions of EMS W22 Lane
- Portions of EMS W14A Lane

Environmental studies, including a wetland delineation, will be conducted prior to project completion. Results of these investigations will be included in Appendix G.

See Figure 9 for the USFW wetland maps.

5.5 HYDROLOGY AND SURFACE WATERS

The project will not adversely affect Outstanding State Resource Waters listed in 327 IAC 2-1-11(b) or 327 IAC 2-1.3-3 (d) or 327 IAC 2-1.5-19 (b), Natural, Scenic and Recreational Rivers and Streams listed in 312 IAC 7-2, Salmonid Streams listed in 327 IAC 2-1.5-5(a)(3), or waters on the Outstanding Rivers List (Indiana Register - 20070530-IR-312070287NRA).

There will be one stream crossing within the floodplain anticipated with this project, which will take place on EMS W17C Lane. The pressure sewer in this area will be installed via directional drilling, which will mitigate environmental impacts to the stream. There are several homes on this island that will need to be served by the proposed sewer; therefore, it is necessary to cross the stream in order to serve those homes.

Dewatering may be needed for construction of the wet wells for the lift station. For the package grinder pump stations and pressure sewer structures, it is anticipated that only minor dewatering of short duration (2 hours or less) may be required.

If dewatering is necessary, the Contractor will be required to discharge to a suitable location and provide a settling basin or filtering bag to capture solids prior to the discharge.

The wastewater system is not located within the Lake Michigan, St. Joe River, or Maumee River Basin.

The wastewater system discharges to James Lake, which is listed on the 303(d) list.

No adverse impacts are expected to local water wells and the groundwater table.

5.6 GROUNDWATER

The project is not within the limits of the St. Joseph Sole Source Aquifer.

The project is not located within any karst features.

5.7 100-YEAR AND 500-YEAR FLOODPLAIN

The applicant is aware of the hazards of locating structures in areas subject to the base flood. Location of the proposed project outside the 100-year floodplain is not realistic due to the fact that the project area is located adjacent to a lake. Several homes within the project area are within a floodplain, and in order to connect these homes to the proposed sewer system and eliminate their existing septic system, a sewer system will need to be installed within the routes indicated for the proposed system.

See Figure 10 for the FEMA floodplain map.

5.8 PLANTS AND ANIMALS

The project is expected to have minimal to no impact on plants and animals during construction and no impact afterwards. As discussed previously, the majority of the project elements will be installed within the existing pavement. Therefore, disturbance to plants and animals will be minimal to none. The project will be submitted to the Information for Planning and Consultation (IPaC) system regarding species within the project area. Results will be included in Appendix H.

5.9 PRIME AND UNIQUE FARMLAND

Completed Farmland Conversion Impact Rating Forms, will be submitted to the appropriate representatives for Indiana and will be included in Appendix I.

5.10 AIR QUALITY

Construction activities may generate some noise, fumes, and dust, but should not significantly affect air quality, as the majority of the project will be constructed via directional drilling.

Appropriate setbacks and sound suppression devices will be provided at the lift station site to limit noise.

There will be no change in sound generated at the North Webster WWTP site.

5.11 OPEN SPACE AND RECREATIONAL OPPORTUNITIES

The proposed project's construction and operation will neither create nor destroy open space and recreational opportunities.

5.12 LAKE MICHIGAN COASTAL MANAGEMENT ZONE

The proposed project will not affect the Lake Michigan Coastal Zone.

5.13 NATIONAL NATURAL LANDMARKS

The construction and operation of the proposed project will not impact National Natural Landmarks.

5.14 SECONDARY IMPACTS

The District, through local zoning laws, the authority of its council or planning commission, or other means, will ensure that future development and utility projects connecting to SRF-funded facilities will not adversely affect wetlands, wooded areas, steep slopes, archaeological/historical/structural resources, or other sensitive environmental resources. The District will require new development and utility projects to be constructed within the guidelines of the US Fish and Wildlife Service, Indiana Department of Natural Resources, Indiana Department of Environmental Management, and other environmental review authorities.

5.15 MITIGATION MEASURES

The project will be subject to the conditions set forth in erosion control measures requirements of the project plans and specifications. The contractor will be required to comply with the terms and conditions of the permits.

The contractor will be required to utilize trenchless pipe installation techniques for most of the project with limited ability and/or locations to utilize conventional open-excavation methods. This will significantly reduce the number of land-disturbing activities.

6. PUBLIC PARTICIPATION AND LEGAL, FINANCIAL & MANAGERIAL CAPACITY

6.1 PUBLIC PARTICIPATION

The District will hold a public hearing to present and discuss the project details and gather public comments. The documentation for the public hearing can be found in Appendix J and includes the following:

1. Publisher's Affidavit from the newspaper
2. Public Hearing Sign-in Sheet
3. Meeting Minutes
4. All (if any) written comments submitted by the public, including comments submitted during the hearing and the 5-day post-meeting comment period.
5. Self-sticking mailing labels for interested party's county drainage board, county health department, and county plan commission.

The following certification forms will be provided following the public hearing:

- Signatory Authorized Resolution Form – to be included in Appendix K.
- PER Acceptance Resolution Form – to be included in Appendix L.

6.2 LEGAL, FINANCIAL & MANAGERIAL CAPACITY

The selected and recommended project will be owned, operated, and maintained by the District. The table below outlines the total project costs for the recommended alternative.

Table 22 – Total Project Costs

| Collection System Alternative No. 2 - Pressure Sewer System | |
|--|-----------------------|
| Total Construction Costs (w/ contingency) | \$4,851,000.00 |
| Non-Construction Costs | |
| Preliminary Engineering Report | \$35,000 |
| Surveying/Design/Permitting/Bidding | \$339,570 |
| Construction Admin./Post Construction | \$145,600 |
| Inspection | \$291,100 |
| Easement Descriptions | \$100,000 |
| Land/Easement Acquisition | \$50,000 |
| Rate Consultant | \$72,800 |
| Local Counsel | \$97,100 |
| Bond Counsel | \$48,600 |
| Misc. Administration Costs | \$15,000 |
| Davis-Bacon Labor Standards Administrator | \$15,000 |
| Outside Consulting (Soil Borings, Arch. & Historical, Environmental, Etc.) | \$40,000 |
| Non-Const. Sub-Total (rounded up to nearest \$1,000) | \$1,249,800 |
| Total Estimated Project Cost (rounded to nearest \$10,000) | \$6,101,000 |

The Preliminary Rate Analysis can be found in Appendix M. Additional cost details can be found in the SRF Project Finance Information Form in Appendix N.

For reference, the District's Financial Advisor is Baker Tilly (Jeffery Rowe, CPA) 574 935-5178. At this time, the Bond Council is to be determined. Once identified the District will share this information with SRF team.

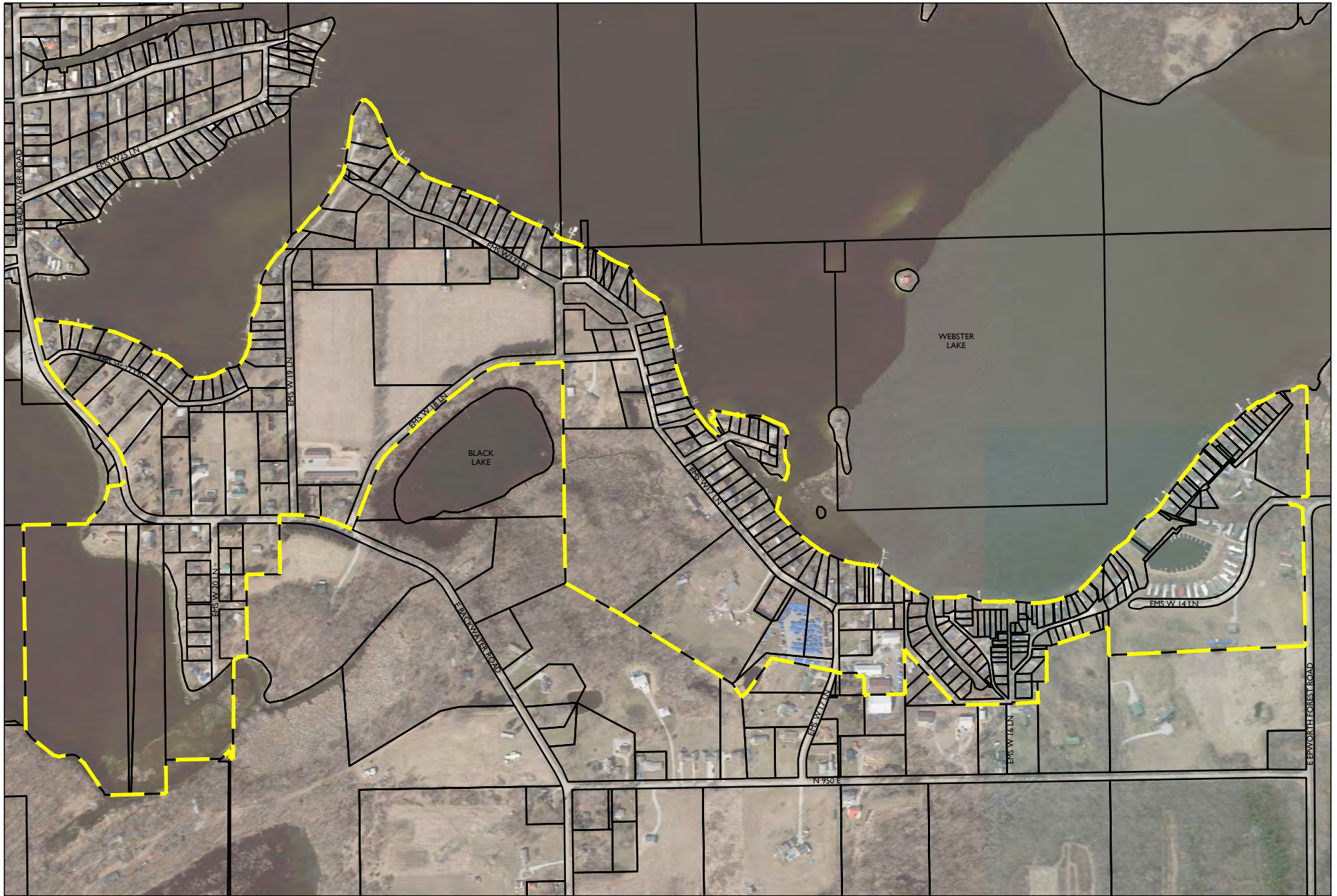
The District will develop an Asset Management Program that will meet the requirements defined by the State Revolving Fund's Asset Management Program Guidelines pursuant to Indiana Code 5-1.2-10-16, and will be inclusive of the Fiscal Sustainability Plan minimum requirements listed in the Federal Water Pollution Control Act Section 603(d)(1)(E). The Asset Management Program Certification Form Inclusive of Fiscal Sustainability Plan Certification (AMP-FSP) Form is provided in Appendix O.

The District has not participated in a utility regional planning meeting within the last calendar year. Pursuant to IC 5-1.2-11.5-6, the District plans to meet this requirement prior to loan closing.

A cost and effectiveness analysis will be completed to meet the minimum requirements of the Water Resources Reform and Development Act of 2014. This form will be completed in Appendix P following the public hearing.

EAST WEBSTER LAKE AREA WASTEWATER COLLECTION SYSTEM

FIGURES



EAST WEBSTER WASTEWATER COLLECTION SYSTEM

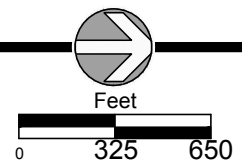
FIGURE 1
SERVICE AND STUDY AREA BOUNDARIES
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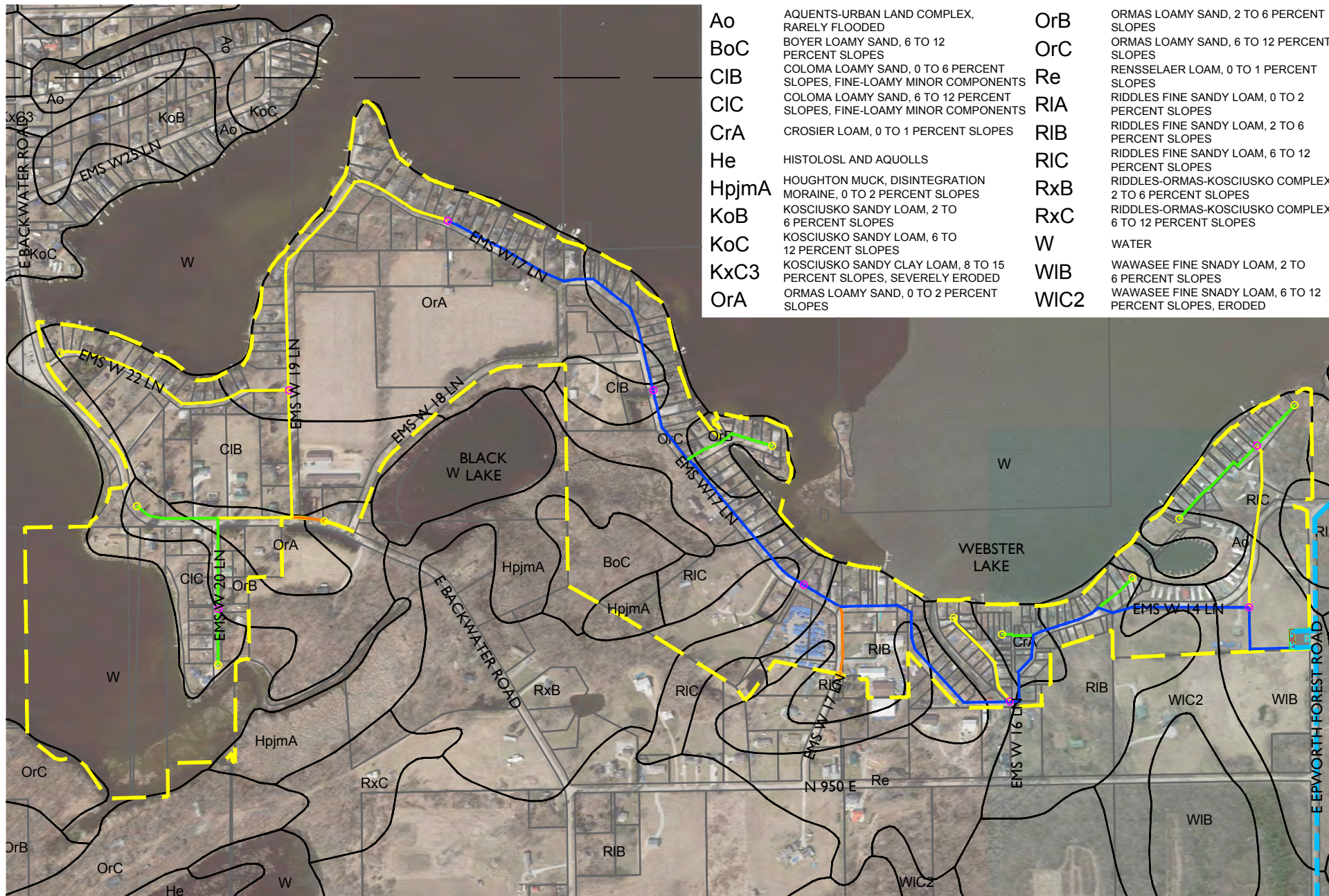
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EAST WEBSTER WASTEWATER COLLECTION SYSTEM

FIGURE 2
USGS TOPOQUAD MAP
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EAST WEBSTER WASTEWATER COLLECTION SYSTEM

FIGURE 3

USDA SOILS MAP

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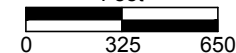


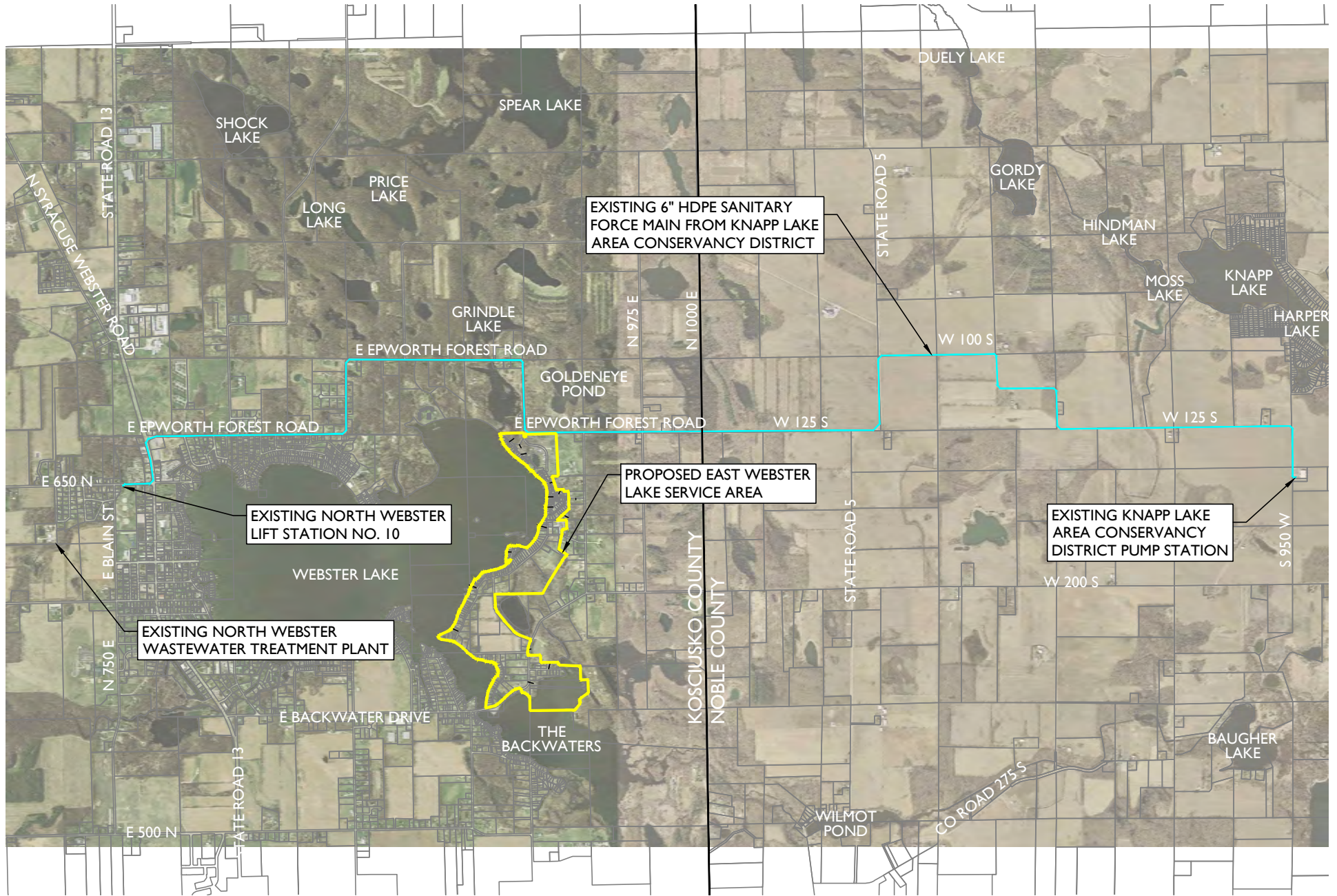
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Feet





EAST WEBSTER WASTEWATER COLLECTION SYSTEM

FIGURE 4

EXISTING FACILITIES

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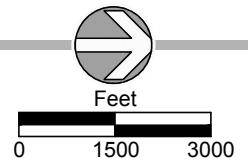
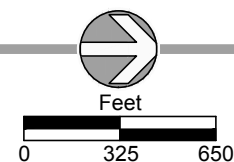
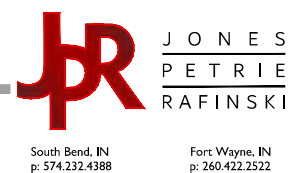
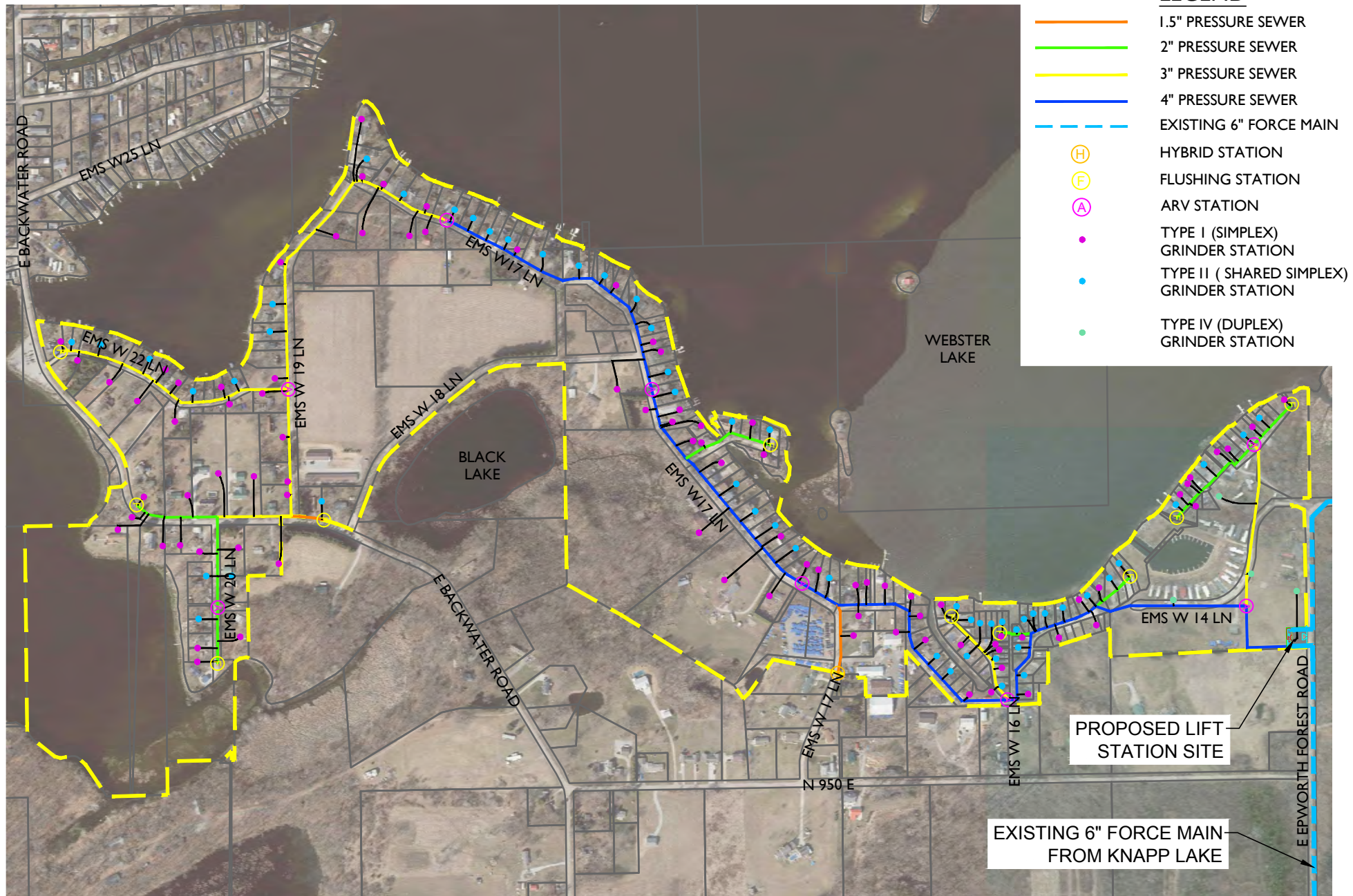


FIGURE 5
GRAVITY SEWER LAYOUT
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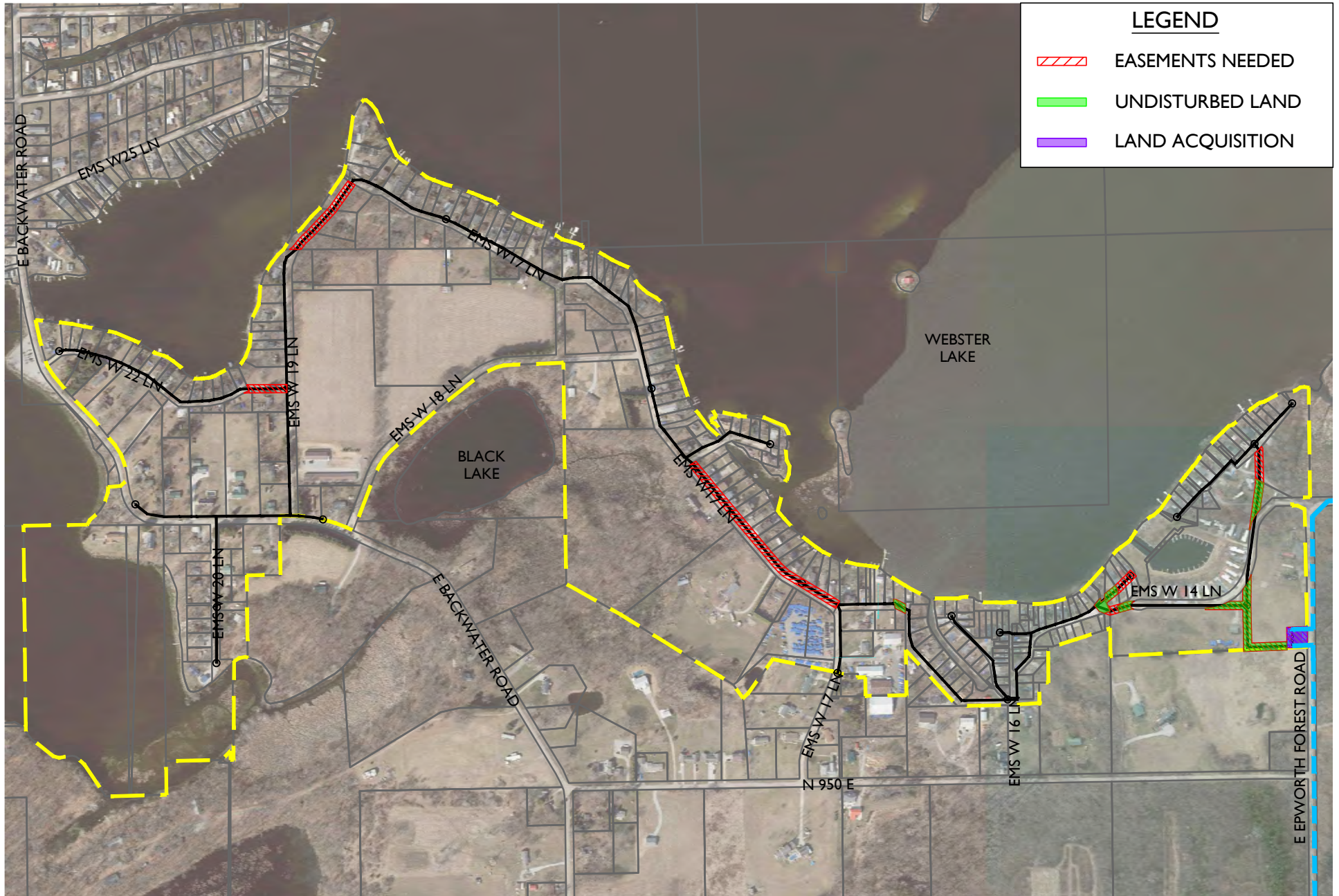


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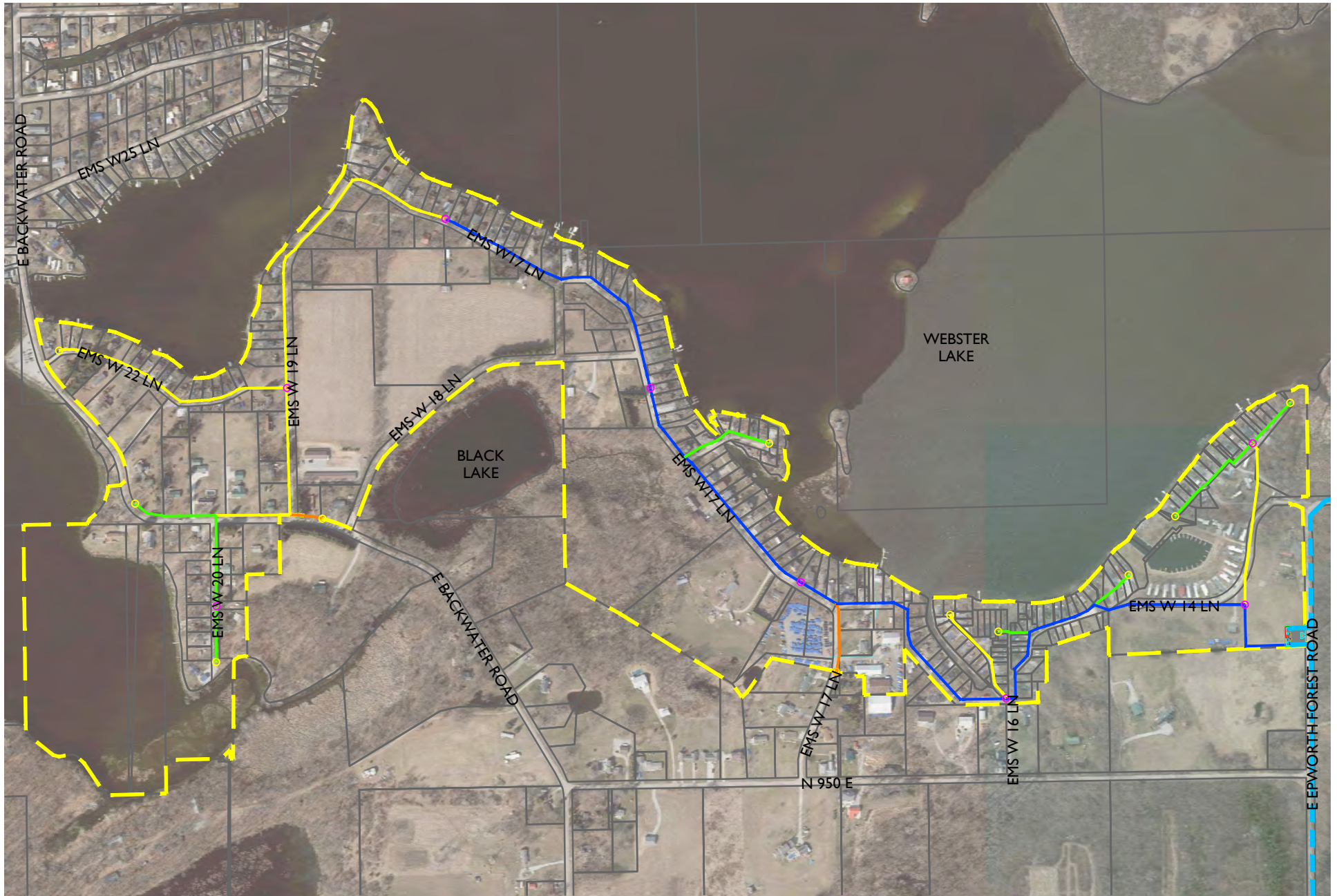
EAST WEBSTER WASTEWATER COLLECTION SYSTEM

FIGURE 6
PRESSURE SEWER LAYOUT
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EAST WEBSTER WASTEWATER COLLECTION SYSTEM

FIGURE 7
UNDISTURBED LAND AND EASEMENTS MAP
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EAST WEBSTER WASTEWATER COLLECTION SYSTEM

FIGURE 8

HISTORICAL SITES

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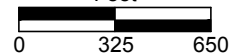
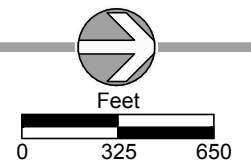
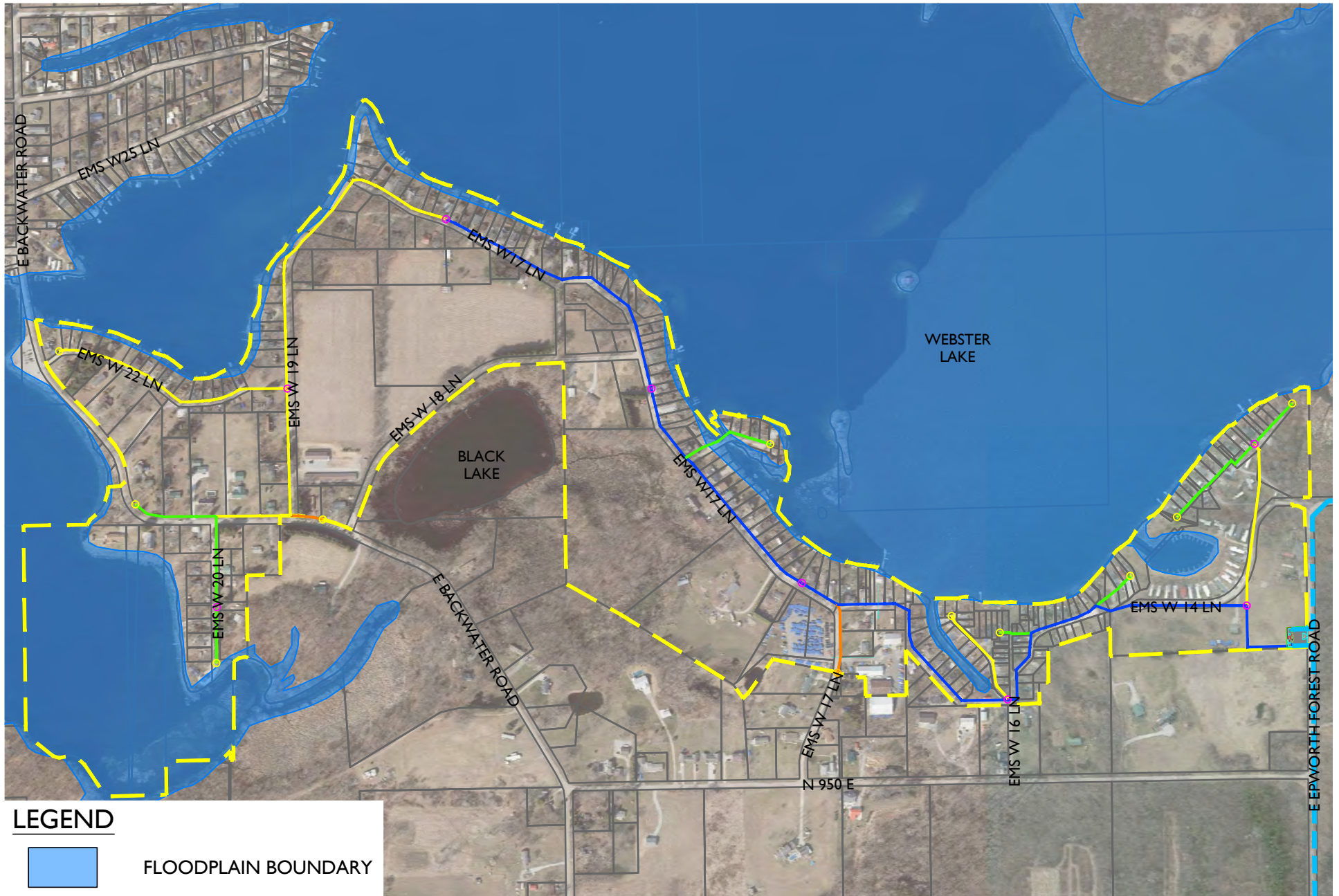
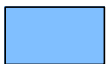


FIGURE 9
USGS WETLANDS MAP
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LEGEND



FLOODPLAIN BOUNDARY

EAST WEBSTER WASTEWATER COLLECTION SYSTEM

FIGURE 10
FEMA FLOODPLAIN MAP
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EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX A
LETTER OF SUPPORT



KOSCIUSKO COUNTY HEALTH DEPARTMENT
100 W CENTER ST
WARSAW, IN 46580
(574) 372-2349
Fax: (574) 269-2023

December 11, 2023

Re: East Webster Lake Septic Elimination Project

To Whom It May Concern,

This is a letter of strong support for the East Webster Septic Elimination Project from the Kosciusko County Health Department. As a county with over 100 lakes, it has become essential for the Health Department to play a vital role in protecting these waters from any waste water generated within a house or other structure. To this end, as of today, the Health Department has designed, permitted, and inspected over 70 septic system repairs in the east Webster Lake area. The lake waters have benefitted greatly as a result of this. As a State and EPA approved laboratory the Health Department has regularly examined Webster Lake during the summer months.

Although these septic systems have greatly improved water quality, they are not the answer to long term treatment of household waste water in this area. Many of the systems are undersized due to the small size of many of the lots in this area. In addition, we attempt to obtain the 50 foot separation requirement between septic systems and water wells. Many times this keeps septic systems undersized as we hesitate to encroach on this 50 foot barrier.

These problems will disappear with the installation of sanitary sewer in this area. In addition, the people who are served by the sewer will have much greater latitude in utilizing their lot space. They no longer have to maintain a septic field area now or for future use. The new garage or room addition will become a reality. Maybe even a complete tear down and rebuild.

The Kosciusko County Health Department highly recommends this sanitary sewer project and we support it strongly.

A handwritten signature in black ink that reads "Robert Weaver". The signature is fluid and cursive.

Robert Weaver
Administrator
Kosciusko County Health Department



Public Health
Prevent. Promote. Protect.

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX B
SRF PRELIMINARY
DESIGN SUMMARY



PRELIMINARY ENGINEERING REPORT Wastewater Treatment Plant Design Summary

I. GENERAL

1. Applicant's Name: **Tippecanoe and Chapman Regional Sewer District**
2. Project Name: **East Webster Lake Area Wastewater Collection System**
3. Location: **East Webster Lake Area: Bounded by Epworth Forest Rd to the north, N 950 E and Backwater Rd to the east, and the Backwaters Public Access Site to the south (Kosciusko County, Indiana)**
4. Engineer (Consultant): **Jones Petrie Rafinski Corp**
5. NPDES Permit Number: **IN0040444 (North Webster WWTP)**
 - A. Date of final Permit Issuance: **April 1, 2019**
 - B. Expiration Date: **March 31, 2024**
6. Remarks:
 - A. Description of Present Situation:

The residents of the East Webster Lake service area mostly rely on private wells for drinking water and private onsite septic systems for wastewater disposal and treatment. Residents of the proposed service area have experienced problems with individual on-site septic systems, as many of the septic systems are old and failing. Failing septic systems allow untreated sewage to discharge to the groundwater and surrounding lakes and rivers, thus resulting in the potential for serious health and safety issues. Many of the parcels with houses in the service area are small and do not allow for proper separation between the septic systems and the groundwater wells (either from their own on-site systems or from their neighbors' systems). If the current septic systems are not eliminated, the water quality (both surface and groundwater) will continue to degrade, resulting in potential for private water wells becoming contaminated.

The soils found in these service areas consist mostly of muck, loamy sand, and sandy loam which are "very limited" in respect to use as absorption field for septic systems, resulting in poor performance and high maintenance. Therefore, the soils are not conducive for the intended treatment results without major soil reclamation, special design, or expensive installation procedures.

Septic inspection records were also collected from the Kosciusko County Health Department. Approximately 67 installation inspection records were received from the Health Department, with a note that any records of installations prior to approximately 1982 were destroyed in a fire in the former Department office location. With 199 planned connections in the service area, the records received represent only 33% of septic systems in the service area – this indicates that the remaining 67% of customers in the area would have septic systems that were installed prior to 1982, and therefore are well beyond their useful life. The records received document systems installed or repaired ranging from 2 to 40 years ago; it could be reasonably assumed then that approximately half of those documented systems are also beyond their useful life. Altogether, an estimated 166 – or 83% – of the septic systems in the service area are expected to be beyond their useful life, leeching their contents into the surrounding soil and negatively affecting the groundwater and lake water quality.

B. Description of Proposed Facilities:

Based on the review of the alternatives considered, a Pressure Collection System and Utilizing the North Webster WWTP are the recommended alternatives due to the reasons listed below:

- The pressure system would eliminate the need for extensive open-cut excavation required for gravity collection.
- The projected costs of pressure sewer systems are less than the projected costs of the gravity system.
- Utilizing the existing capacity at the North Webster WWTP effectively requires zero capital costs, compared to immense capital costs for a new WWTP.
- Utilizing the existing WWTP eliminates the need for ongoing staffing and maintenance of a separate plant exclusively for the service area.
- The present worth of the pressure collection improvements is lower than the present worth of the gravity collection system.
- Many of the residents have septic systems that have failed or are undocumented. Septic systems that fail can cause groundwater contamination and seep into private drinking wells. A pressure sewer system will eliminate existing septic systems and eliminate the potential for groundwater or well contamination.

As a part of this recommended project, one wastewater lift station will be constructed to transport collected wastewater. The lift station will be constructed on Epworth Forest Rd west of N 950 E to serve the entire service area of East Webster Lake. The pressure sewer collecting from the southern limits of the service area will connect into the lift station and tie into the existing force main from the Knapp Lake Area Conservancy District. The flow from Knapp Lake will also be conveyed to the lift station. This lift station will be rated for 300 GPM, which is a sufficient size to receive flows from both Knapp Lake and East Webster Lake. This lift station will then convey flow to the existing North Webster Lift station via force main.

The pressure sewer system will include the following:

- 600 LFT – 1.50” HDPE DR 11 pipe
- 2,800 LFT – 2” HDPE DR 11 pipe
- 5,200 LFT – 3” HDPE DR 11 pipe

- 5,900 LFT – 4” HDPE DR 11 pipe
- 88 - Type I grinder stations
- 55 – Type II grinder stations
- 4 – Type IV grinder stations
- 1 Lift Station – rated for 300 GPM

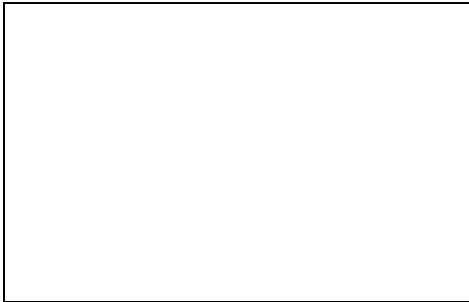
C. Inspection During Construction to be provided by: **Jones Petrie Rafinski Corp.**

7. Estimated Project Cost: **Construction Costs (with contingency): \$4,851,000**
Non-Construction Costs: \$1,249,800

A. Source of Funding (Revenue Bond, State Grant, SRF, Etc.): **State Revolving Fund**

B. Total Cost: **\$6,101,000 (rounded to nearest \$10,000)**

8. Certification Seal and Signature of Engineer: *



II. DESIGN DATA: *

1. Current Population:
1,002 (North Webster), 199 customers (East Webster Lake)
2. Design Year and Population:
Year 2045, 1,049 population
3. Design Population Equivalent P.E.:
19,302 gpd @ 175 gpm/home (1/2 of calculated design flow)
4. Design Flow:
19,302 gpd

- A. Industrial/Commercial: 2,065 gpd (mobile home park & marina)
 - B. Infiltration/Inflow: N/A
 - C. Domestic: 17,237 gpd (175 gpm/home)
5. Average Design Peak Flow:
154,415 gpd (full flows with peak factor)
6. Maximum Plant Flow Capacity:
n/a
7. Design Waste Strength: *
- A. CBOD: 200 mg/L (32 lbs/day)
 - B. TSS: 200 mg/L (32 lbs/day)
 - C. NH₃-N: 42 mg/L (6.8 lbs/day)
 - D. P: 8 mg/L (1.3 lbs/day)
 - E. Other: N/A
8. NPDES Permit Limitation on Effluent Quality: (North Webster)
- A. CBOD: 10 mg/L
 - B. TSS: 12 mg/L
 - C. NH₃-N: Summer – 1.1 mg/L
NH₃-N: Winter – 1.6 mg/L
 - D. P: 1.0 mg/L
 - D. E-coli: 125 count/100 mL (monthly average)
235 count/100 mL (daily maximum)
 - E. Chlorine Residual: 0.02 mg/L (daily maximum)
0.01 mg/L (monthly average)
 - G. pH: 6.0 – 9.0 s.u.
 - H. D.O.: 6.0 mg/L (daily minimum)

I. Mercury: **N/A**

9. Receiving Stream:

A. Name: **Kuhn Ditch**

B. Tributary to: **James Lake**

C. Stream Uses: **Full body contact recreational use and shall be capable of supporting a well-balanced warm water aquatic community**

D. 7-day, 1-in-10 year low flow: **0.0 cfs**

III. TREATMENT UNITS - na

Plant Site Lift Station

1. Location: *
2. Type of pump: *
3. Number of pumps: *
4. Constant or variable speed: *
5. Capacity of pumps: *
6. RPM and TDH: *
7. Volume of the wet well: *
8. Detention time in the wet well: *
9. A gate valve and a check valve in the discharge line: *
10. A gate valve on suction line: *
11. Ventilation: *
12. Standby power: *
13. Alarm: *
14. Breakwater tank: *

15. Bypass or overflow: *

Flow Equalization

1. Number and size of units: *
2. Method of flow diversion to unit: *
3. Air and mixing provided: *
4. Method and control of flow return: *
5. Description of unit operation: *
6. Lagoon sealing: *
7. Method of sludge removal: *

Flow Meters

1. Type: *
2. Location: *
3. Indicating, recording and totalizing: *

Grit Chamber

1. Type of grit chamber: *
2. Number of units: *
3. Size of unit: *
4. Method of velocity (aeration) control: *
5. Velocity (aeration) in the chamber: *
6. Drain provided: *
7. Flow restrictions: *
8. Facilities to isolate: *

Comminutors

1. Type: *
2. Location: *
3. Maximum capacity: *
4. By-pass (over flow) bar screen: *

Screens

1. Type: *
2. Number and capacity: *
3. Bar spacing and slope: *
4. Method of cleaning:
5. Disposal of screenings:

Primary Settling

1. Type of clarifier: *
2. Number and size of units: *
3. Surface settling rate (gpd/sf)
 - a. at the design flow: *
 - b. at the influent pumping rate: *
 - c. at the equalized flow rate: *
4. Detention time: (hrs): *
5. Type of sludge removal mechanism: *
6. Weir overflow rate: *
7. Disposition of scum: *
8. Location of overflow weir: *

9. Facilities to isolate: *

Activated Sludge

1. Type of activated sludge process: *
2. Number and size of units: *
3. Detention time (hrs): *
4. Organic loading (lb BOD/1000 cf): *
5. Type of aeration equipment: *
6. Type and size of blowers: *
7. Air required (itemize, cfm): *

8. Provisions of speed adjustment: *
9. Air provided: *
10. Ventilation in the blower room: *
11. Number and capacity of return sludge pump: *
12. Method of return sludge rate control: *
13. Return sludge rate as % of design flow: *
14. Provisions for return rate metering: *
15. Location of return sludge discharge: *
16. Facilities to isolate units: *
17. Facilities for flow split control: *

Oxidation Ditch

1. Number and size of units: *
2. Detention time (hrs): *
3. Organic loading (lb BOD /1000 cf): *
4. Type and efficiency of aeration equipment (lb O /HP-hr): *
5. Oxygen required: *
6. Oxygen provided: *
7. Flow velocity in ditch: *
8. Number and capacity of return sludge pump: *
9. Method of return sludge rate control: *
10. Return sludge rate as % of design flow: *
11. Provisions for return sludge metering:
12. Location of return sludge discharge: *

13. Facilities to isolate units: *

14. Facilities for flow split control: *

Trickling Filters

1. Number and size of units: *

2. Type of media: *

3. Hydraulic loading (gpm/cf): *

4. Organic loading (lb BOD /1000 cf): *

5. Recirculation: *

6. Ventilation: *

Rotating Biological Contactor

1. Size and number of units: *

2. Type of media: *

3. Detention time (min.): *

4. Organic loading (lb BOD /1000 sf): *

5. Hydraulic loading (gpd/sf): *

6. Method of shaft drive: *

7. Supplemental air: *

8. Facilities to isolate: *

9. Facilities for flow split control: *

Sequential Batch Reactors

1. Type of Activated Sludge Process:

2. Number and Size of Units

3. Detention Time (Hours):

- a. Low water level:
- b. High water level:
- c. Total cycle:

4. Organic Loading (lb BOD/1000cf)

- a. At low water level
- b. At high water level

5. Type of aeration equipment: *

6. Type and size of blowers: *

7. Air required (itemize, cfm): *

8. Provisions of speed adjustment: *

9. Air provided: *

10. Ventilation in the blower room: *

11. Number and capacity of waste sludge pump: *

12. Decanter rated at average flow (GPM):
at peak flow (GPM):

13. Facilities to isolate units: *

14. Facilities for flow split control: *

Lagoons

1. Type of lagoons *

2. Number and size of lagoons *

3. Organic loading *

4. Type of aeration equipment (if applicable): *

5. Type and size of blowers (if applicable): *
6. Air required (if applicable): *
7. Air provided (if applicable): *
8. Controlled discharge facilities: *
9. Maximum water level: *
10. Freeboard: *
11. Soil boring data and permeability data: *
12. Slope of embankment and top width: *
13. Fence: *
14. Detention time: *
15. Stream gage: *
16. Lagoon seal: *
17. Facilities for multi-level lagoon discharge: *
18. Scum control: *

Secondary Clarifier

1. Type of clarifiers: *
2. Number and size of units: *
3. Surface settling rate (gpd/sf): *
 - a. at the design flow: *
 - b. at the influent pumping rate: *
 - c. at the equalized flow rate: *
4. Detention time (hrs): *
5. Type of sludge removal mechanism: *

6. Weir overflow rate: *
7. Disposal of scum: *
8. Facilities for unit isolation: *
9. Facilities for flow split control: *

Rapid Sand Filtration

1. Number and size of filters: *
2. Filtration rate: *
 - a. at peak flow rate: *
 - b. at average flow rate: *
3. Type, depth, and grain size of filter media: *
4. Backwash rate: *
5. Air scour
6. Capability to chlorinate ahead of the filter: *
7. Backwash pumps (number and capacity): *
8. Method of rate control: *
9. Source of capacity of backwash water:
10. Holding capacity or dirty water tank: *
11. Facilities for unit isolation: *

Micro-strainers

1. Number and size of strainers: *
2. Screen material: *
3. Filtration rate: *
4. Backwash rate: *

5. Number and capacity of backwash pumps: *
6. Facilities for unit isolation: *
7. Slime control provisions: *

Two-day Lagoon

1. Number and size of lagoon cells: *
2. Detention time (days): *
3. Type of chemical: *
4. Location of chemical injection: *
5. Number and size of chemical feed pumps: *
6. Rate adjustment capabilities: *
7. Capacity of chemical storage tank: *
8. Capacity of spill storage space: *
9. Expected daily use of chemical (dosage and solution): *
10. Lagoon seal: *
11. Parallel or series operation: *
12. Sludge removal facilities: *
13. Method of draining: *
14. Multi-level discharge: *
15. Scum control: *

Post-aeration

1. Type of aeration: *
2. Number of units: *
3. Size of units: *

4. Aeration provided: *
5. Expected effluent DO: *

Nitrification System

1. Type of nitrification system: *
2. Ammonia loading: *
3. Additional oxygen demand: *
3. Air supply system: *
4. Hydraulic detention time: *
5. Mean cell residence time (days): *

Phosphorus Removal Facilities

1. Type of chemical to be used: *
2. Location of chemical injection: *
3. Number and size of chemical feed pumps: *
4. Size of chemical; storage tank: *
5. Capacity of spill storage space: *
6. Chemical dosage: *
7. Daily chemical consumption expected: *
8. Rapid mix tank: *
9. Slow mixing equipment: *
10. Other facilities - describe: *

Disinfection

1. Type of disinfectant used: *
2. Size of contact tank: *

3. Contact time: *
4. Type of disinfectant feeders: *
5. Capacity of the feeders: *
6. Disinfectant dosage: *
7. Scum control baffle: *
8. Source of the disinfectant feed water: *
9. Breakwater tank for the feed water: *
10. Bypass: *
11. Drain for tank: *
12. Ventilation in chlorine room: *
13. Safety equipment: *

De-Chlorination

1. Chemical used: *
2. Type of feeders: *
3. Capacity of feeders: *
4. Dosage: *
5. Type of diffuser: *
6. Diffuser location: *
7. Equipment location: *
8. Ventilation provided: *
9. Safety equipment: *

UV Disinfection

1. Type: *

2. Location: *
3. Size of channel: *
4. Contact time: *
5. Dosage: *
6. Bypass: *
7. Safety Equipment: *
8. Cleaning Equipment: *
9. Intensity Monitoring: *

Sludge Thickening

1. Number and size of thickeners: *
2. Type of sludge thickeners: *
3. Hydraulic loading: *
4. Solids loading: *
5. Provisions to chlorinate: *

Anaerobic Digesters

1. Number and size of units: *
2. Total volume: *
3. Organic loading: *
4. Hydraulic detention time: *
5. Volume per capita: *
6. Type of mixing: *
7. Heating: internal or external

Aerobic Digesters

1. Number and size of units: *
2. Detention time: *
3. Organic loading: *
4. Air supply: *
5. Decanting method: *

Wet-Oxidation

1. Number of units: *
2. Type of heat treatment: *
3. Temperature and pressure to be used: *
4. Capacity of the unit: *
5. Daily sludge production for heat treatment: *

Sludge Drying Beds

1. Number and size of drying beds: *
2. Filter area per capita: *
3. Under-drain system: *
4. Discharge location of filtrate: *
5. Accessibility of dry sludge removal equipment: *

Mechanical Dewatering

1. Type of dewatering units: *
2. Number and size of dewatering units: *
3. Capacity of dewatering units: *
4. Daily solids production for dewatering: *

5. Type of chemicals to be used: *

Sludge Disposal

1. Ultimate disposal method of sludge: *
2. Expected solids content of sludge (by the principal method of disposal):*
3. Location of disposal site: *
4. Ownership of the disposal site: *
5. Availability of sludge transport equipment: *

IV. SEWER COLLECTION SYSTEM

Lift Stations – No. 10 (Main Lift Station at North Webster, where East Webster Lake will convey flow to prior to WWTP)

1. Location: **On Crystal Flash Road, east of Blaine Street**
2. Type of pump: **Submersible**
3. Number of pumps: **Three (3)**
4. Constant or variable speed: **Variable**
5. Capacity of pumps: **750 GPM**
6. RPM and TDH: **1,150 and 41' TDH**
7. Volume of the wet well: **Variable**
8. Detention time in the wet well: **Variable**
9. A gate valve and a check valve in the discharge line: **Yes**
10. A gate valve on suction line: **N/A**
11. Ventilation: **Yes**
12. Standby power: **Yes (105 kW stationary generator)**
13. Alarm: **Yes**
14. Breakwater tanks: **N/A**
15. Bypass or overflow: **N/A**
16. Type of force main: **PVC SDR 21 (ASTM D2241)**
17. Diameter and length of force main: **2,563' of 10-inch**

Lift Stations – Proposed @ East Webster

1. Location: **Epworth Forest Rd west of N 950 E**
2. Type of pump: **TBD**
3. Number of pumps: **Two (2)**
4. Constant or variable speed: **TBD**
5. Capacity of pumps: **300 GPM**
6. RPM and TDH: **TBD**
7. Volume of the wet well: **TBD**
8. Detention time in the wet well: **TBD**
9. A gate valve and a check valve in the discharge line: **TBD**
10. A gate valve on suction line: **TBD**
11. Ventilation: **TBD**
12. Standby power: **TBD**
13. Alarm: **TBD**
14. Breakwater tanks: **TBD**
15. Bypass or overflow: **TBD**
16. Type of force main: **HDPE DR 11**
17. Diameter and length of force main: **Existing 6-inch to North Webster**

Sewer

1. Type of sewer material: **Pressure Sewer, HDPE DR 11**
2. Diameter and length of sewer (indicate length for each size):
 - **600 LFT – 1.50” HDPE DR 11 pipe**
 - **2,800 LFT – 2” HDPE DR 11 pipe**
 - **5,200 LFT – 3” HDPE DR 11 pipe**
 - **5,900 LFT – 4” HDPE DR 11 pipe**
3. Stream, highway, and railroad crossing: **Yes, all will be accomplished using directional drilling to minimize wetland disturbance. Appropriate permits will be submitted prior to installation. A wetland delineation will also be conducted to confirm the extents of the disturbance.**
4. Separation of combined sewer or new sewer: **Contractor to maintain 10’ horizontal and 18” vertical separation between all sewer lines and storm sewer lines.**
5. Number of manholes:
 - **Flushing Stations – 10 EA**
 - **Air Release Valve Stations – 8 EA**

- Hybrid Stations – 1 EA

6. Water main protection: Contractor to maintain 10' horizontal and 18" vertical separation between all sewer lines and water mains.

Individual Grinder Pumps

1. Location: To be determined
2. Number of pumps: 147
3. Capacity of pumps:
 - 88 - Type I grinder stations - TBD
 - 55 – Type II grinder stations - TBD
 - 4 – Type IV grinder stations - TBD
4. RPM and TDH: TBD
5. Volume of the wet well: TBD
6. A gate valve and a check valve in the discharge line: TBD
7. Ventilation: TBD
8. Alarm: Yes

V. MISCELLANEOUS - N.a.

- A. Laboratory equipment:
- B. Safety equipment: *
- C. Plant site fence: *
- D. Handrail for the tanks: *
- E. Units, unit operation, and plant bypasses: *
- F. Flood elevation (10, 25, or 100 year flood): *
- G. Provisions to maintain the same degree of treatment during construction: *
- H. Standby power: *
- I. Site inspection: *

- J. Statement in the specifications as to the protection against any adverse environmental effect (e.g., dust, noise, soil erosion) during construction: *
- K. Hoists for removing heavy equipment: *
- L. Adequate sampling facilities: *
- M. Hydraulic Gradient: *
- N. Septage receiving facilities
 - 1. Screening: *
 - 2. Location of discharge:

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX C
NORTH WEBSTER WWTP MROS

North Webster WWTP MROs

| | Average Wastewater Influent Flow | Average Wastewater Influent Flow | Max. Wastewater Influent Flow | Wastewater Influent Loading | | | | | | | |
|---------------------|----------------------------------|----------------------------------|-------------------------------|-----------------------------|--------|--------|--------|-------|-------|---------|-------|
| Month | MGD | GPD | MGD | BOD | | TSS | | Phos. | | Ammonia | |
| | | | | mg/l | lbs | mg/l | lbs | mg/l | lbs | mg/l | lbs |
| Jan-21 | 0.2933 | 293300 | 0.4724 | 102 | 249.83 | 125 | 306.16 | 3.79 | 9.28 | 14.2 | 34.78 |
| Feb-21 | 0.2962 | 296200 | 0.3496 | 111 | 274.56 | 93 | 230.04 | 4.43 | 10.96 | 16.3 | 40.32 |
| Mar-21 | 0.3211 | 321100 | 0.4946 | 97 | 260.10 | 114 | 305.69 | 5.494 | 14.73 | 11.22 | 30.09 |
| Apr-21 | 0.3628 | 362800 | 0.4535 | 69 | 209.05 | 75 | 227.23 | 2.36 | 7.15 | 13.36 | 40.48 |
| May-21 | 0.3989 | 398920 | 0.6395 | 101 | 336.46 | 100 | 333.13 | 3.256 | 10.85 | 13.79 | 45.94 |
| Jun-21 | 0.3819 | 381900 | 0.5055 | 134 | 427.35 | 68 | 216.86 | 2.857 | 9.11 | 19.15 | 61.07 |
| Jul-21 | 0.4115 | 411500 | 0.4935 | 114 | 391.75 | 111 | 381.44 | 3.517 | 12.09 | 12.78 | 43.92 |
| Aug-21 | 0.3680 | 368000 | 0.5075 | 111 | 341.12 | 93 | 285.80 | 3.176 | 9.76 | 15.51 | 47.66 |
| Sep-21 | 0.3307 | 330700 | 0.4281 | 117 | 323.11 | 104 | 287.21 | 3.731 | 10.30 | 18.66 | 51.53 |
| Oct-21 | 0.4043 | 404300 | 0.6988 | 84 | 283.60 | 78 | 263.35 | 2.827 | 9.54 | 16.21 | 54.73 |
| Nov-21 | 0.3933 | 393300 | 0.4881 | 58 | 190.49 | 71 | 233.19 | 7.007 | 23.01 | 8.679 | 28.51 |
| Dec-21 | 0.3894 | 389400 | 0.4687 | 73 | 237.38 | 64 | 208.12 | 2.7 | 8.78 | 15 | 48.78 |
| Jan-22 | 0.3634 | 363400 | 0.4302 | 92 | 279.19 | 101 | 306.50 | 3.08 | 9.35 | 17.2 | 52.20 |
| Feb-22 | 0.4262 | 426200 | 0.7161 | 101 | 359.47 | 86 | 306.09 | 3.73 | 13.28 | 14.1 | 50.18 |
| Mar-22 | 0.4290 | 429000 | 0.5817 | 68 | 243.61 | 136 | 487.22 | 2.339 | 8.38 | 12.08 | 43.28 |
| Apr-22 | 0.4049 | 404900 | 0.4987 | 99 | 334.74 | 226 | 764.16 | 2.727 | 9.22 | 11.61 | 39.26 |
| May-22 | 0.3752 | 375200 | 0.4900 | 145 | 454.32 | 288 | 902.37 | 4.016 | 12.58 | 15.93 | 49.91 |
| Jun-22 | 0.3449 | 344900 | 0.3847 | 140 | 403.23 | 94 | 270.74 | 2.866 | 8.25 | 13.38 | 38.54 |
| Jul-22 | 0.3647 | 364700 | 0.4835 | 121 | 368.51 | 102 | 310.65 | 3.094 | 9.42 | 13.32 | 40.57 |
| Aug-22 | 0.3415 | 341500 | 0.4758 | 132 | 376.44 | 73 | 208.18 | 3.028 | 8.64 | 12.51 | 35.68 |
| Sep-22 | 0.3175 | 317500 | 0.3700 | 105 | 278.40 | 72 | 190.90 | 3.003 | 7.96 | 17.37 | 46.05 |
| Nov-22 | 0.3088 | 308800 | 0.4146 | 188 | 484.80 | 188 | 484.80 | 3.904 | 10.07 | 17.03 | 43.92 |
| Dec-22 | 0.3312 | 331200 | 0.3999 | 173 | 478.48 | 80 | 221.26 | 3.47 | 9.60 | 17.8 | 49.23 |
| Jan-23 | 0.3634 | 363400 | 0.4302 | 92 | 279.19 | 101 | 306.50 | 3.08 | 9.35 | 17.2 | 52.20 |
| Feb-23 | 0.3822 | 382200 | 0.6825 | 214 | 683.02 | 92 | 293.64 | 2.65 | 8.46 | 15.3 | 48.83 |
| Mar-23 | 0.4798 | 479800 | 0.7864 | 81 | 324.55 | 77 | 308.52 | 2.02 | 8.09 | 10.64 | 42.63 |
| Apr-23 | | | | | | | | | | | |
| May-23 | 0.3609 | 360900 | 0.4344 | 131 | 394.81 | 108 | 325.49 | 3.345 | 10.08 | 19.81 | 59.70 |
| Jun-23 | 0.3244 | 324400 | 0.3762 | 149 | 403.64 | 145 | 392.81 | 4.287 | 11.61 | 24.42 | 66.15 |
| Jul-23 | 0.3470 | 347000 | 0.4292 | 109 | 315.85 | 342 | 991.03 | 3.596 | 10.42 | 19.21 | 55.67 |
| Average | 0.366 | 366083.45 | 0.50 | 114.17 | 344.38 | 117.48 | 356.87 | 3.43 | 10.36 | 15.30 | 46.27 |
| | MGD | GPD | MGD | mg/l | lbs | mg/l | lbs | mg/l | lbs | mg/l | lbs |
| | Average Wastewater Influent Flow | Average Wastewater Influent Flow | Max. Wastewater Influent Flow | BOD | | TSS | | Phos. | | Ammonia | |
| Wastewater Influent | | | | | | | | | | | |

| Wastewater Effluent Loading | | | | | | | | | Average Wastewater Effluent Flow | Average Wastewater Effluent Flow | Max. Wastewater Effluent Flow |
|-----------------------------|-------|------|-------|---------|------|------|-------|------|----------------------------------|----------------------------------|-------------------------------|
| BOD | | TSS | | Ammonia | | DO | Phos. | | | | |
| mg/l | lbs | mg/l | lbs | mg/l | lbs | mg/l | mg/l | lbs | MGD | GPD | MGD |
| 2.1 | 3.88 | 3 | 5.54 | 0.137 | 0.25 | 10.4 | 0.4 | 0.74 | 0.2212 | 221200 | 0.3551 |
| 2.8 | 5.24 | 4.6 | 8.61 | 0.165 | 0.31 | 11.2 | 0.4 | 0.75 | 0.2241 | 224100 | 0.2948 |
| 2.3 | 5.37 | 5.7 | 13.32 | 0.3408 | 0.80 | 10.5 | 0.4 | 0.93 | 0.2798 | 279800 | 0.4378 |
| 2.7 | 7.19 | 6.3 | 16.77 | 0.2071 | 0.55 | 9.7 | 0.5 | 1.33 | 0.3188 | 318800 | 0.3821 |
| 3.1 | 9.06 | 5 | 14.61 | 0.0948 | 0.28 | 9.1 | 0.5 | 1.46 | 0.3499 | 349900 | 0.5776 |
| 5.5 | 15.69 | 5.8 | 16.55 | 0.0969 | 0.28 | 8.2 | 0.6 | 1.71 | 0.3416 | 341600 | 0.4798 |
| 9.5 | 29.31 | 6.9 | 21.29 | 0.0717 | 0.22 | 7.4 | 0.9 | 2.78 | 0.3695 | 369500 | 0.5324 |
| 11 | 30.77 | 4.6 | 12.87 | 0.09 | 0.25 | 7.8 | 0.8 | 2.24 | 0.335 | 335000 | 0.4875 |
| 11.1 | 28.54 | 4.7 | 12.08 | 0.0962 | 0.25 | 8 | 0.9 | 2.31 | 0.3079 | 307900 | 0.394 |
| 5.4 | 16.51 | 5.6 | 17.12 | 0.2425 | 0.74 | 8.4 | 0.8 | 2.45 | 0.3661 | 366100 | 0.6115 |
| 2.7 | 7.68 | 4.3 | 12.23 | 0.2964 | 0.84 | 9.3 | 0.6 | 1.71 | 0.3405 | 340500 | 0.4253 |
| 4 | 10.98 | 4.1 | 11.26 | 0.107 | 0.29 | 9.8 | 0.4 | 1.10 | 0.3288 | 328800 | 0.3975 |
| 3.3 | 7.52 | 3.9 | 8.88 | 0.129 | 0.29 | 10.9 | 0.6 | 1.37 | 0.2727 | 272700 | 0.3331 |
| 4.3 | 12.44 | 4.9 | 14.17 | 0.114 | 0.33 | 10.6 | 0.5 | 1.45 | 0.3463 | 346300 | 0.6631 |
| | | 3.5 | 10.81 | 0.0657 | 0.20 | 10.6 | 0.5 | 1.54 | 0.37 | 370000 | 0.4986 |
| 3.5 | 10.30 | 4.3 | 12.65 | 0.068 | 0.20 | 10 | 0.3 | 0.88 | 0.3524 | 352400 | 0.4385 |
| 3.8 | 10.53 | 4.5 | 12.46 | 0.1077 | 0.30 | 9 | 0.3 | 0.83 | 0.3317 | 331700 | 0.4154 |
| 6.2 | 15.66 | 4.1 | 10.36 | 0.3562 | 0.90 | 8.3 | 1 | 2.53 | 0.3025 | 302500 | 0.3372 |
| 8.3 | 23.36 | 5.5 | 15.48 | 0.1992 | 0.56 | 7.8 | 1.4 | 3.94 | 0.337 | 337000 | 0.4655 |
| 8.7 | 23.58 | 4.1 | 11.11 | 0.1198 | 0.32 | 7.7 | 0.8 | 2.17 | 0.3245 | 324500 | 0.442 |
| 5.9 | 14.37 | 4.1 | 9.98 | 0.1122 | 0.27 | 8 | 0.6 | 1.46 | 0.2916 | 291600 | 0.3309 |
| 3.8 | 8.41 | 5.5 | 12.17 | 0.1862 | 0.41 | | 0.2 | 0.44 | 0.265 | 265000 | 0.3637 |
| 6.7 | 14.28 | 8.3 | 17.70 | 0.204 | 0.43 | | | | 0.2553 | 255300 | 0.3336 |
| 3.3 | 7.52 | 3.9 | 8.88 | 0.129 | 0.29 | | 0.6 | 1.37 | 0.2727 | 272700 | 0.3331 |
| 3.4 | 9.31 | 2.6 | 7.12 | 0.109 | 0.30 | | 0.2 | 0.55 | 0.3279 | 327900 | 0.5617 |
| 3.7 | 12.65 | 1.7 | 5.81 | 0.1513 | 0.52 | | 0.03 | 0.10 | 0.4095 | 409500 | 0.6346 |
| | | | | | | | | | | | |
| 3.8 | 10.03 | 2.3 | 6.07 | 0.166 | 0.44 | | 0.7 | 1.85 | 0.3161 | 316100 | 0.3806 |
| 4.9 | 11.61 | 2.5 | 5.92 | 0.4308 | 1.02 | | 0.8 | 1.90 | 0.2838 | 283800 | 0.3329 |
| 3.3 | 8.69 | 2.5 | 6.58 | 0.375 | 0.99 | | 0.9 | 2.37 | 0.3152 | 315200 | 0.3988 |
| 4.97 | 13.23 | 4.44 | 11.67 | 0.17 | 0.44 | 9.18 | 0.59 | 1.58 | 0.32 | 315772.41 | 0.44 |
| mg/l | lbs | mg/l | lbs | mg/l | lbs | mg/l | mg/l | lbs | MGD | GPD | MGD |
| BOD | | TSS | | Ammonia | | DO | Phos. | | Average Wastewater Effluent Flow | Average Wastewater Effluent Flow | Max. Wastewater Effluent Flow |
| Wastewater Effluent Loading | | | | | | | | | | | |

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX D
KNAPP LAKE/EAST WEBSTER/
NORTH WEBSTER FLOW STUDY



TO: Tippecanoe Chapman Lakes Regional Sewer District

FROM: JPR Project Team

DATE: April 17, 2023

RE: **East Webster Lake/Knapp Lake/North Webster Lake Flow Comparison**

Dear Members of the Board of Trustees,

As discussed, the JPR Team has conducted a flow comparison and analysis of North Webster, Knapp Lake, and East Webster Lake.

Initially, we evaluated the existing average daily flows and peak flows for both North Webster and Knapp Lake using available Monthly Reports of Operation (MRO) information on either the IDEM Virtual File Cabinet or from the District of North Webster. For both North Webster and Knapp Lake, we calculated average and peak CBOD, TSS, Ammonia, and Phosphorus values in both mg/L and lbs./day. For Knapp Lake, we calculated both weekly and daily quantities and loadings in mg/L and lbs./day. We reviewed the existing North Webster and Knapp Lake flow averages to evaluate and determine an estimated design average for the East Webster Lake area. It was determined in the PIR that the design flow for East Webster Lake should be 31,850 GPD. However, we are assuming that East Webster Lake will have similar values as Knapp Lake, so in order to remain conservative, we will assume ½ of the design flow; therefore, for these calculation purposes, we are using 15,925 GPD average design flow for East Webster Lake. In addition, using the Knapp Lake averages and the allowed amounts per the interlocal agreement between Knapp Lake and North Webster, we were able to determine design averages for CBOD, TSS, Ammonia, and Phosphorus for East Webster Lake.

The 'Lakes Comparison – avg' tab lists the average influent flows, CBOD, TSS, Ammonia, and Phosphorus limits for North Webster, Knapp Lake, and East Webster Lake. The values listed for mg/L are weekly averages that were derived from either the MROs, District, or comparative values. Each loading amount in lbs./day was calculated by taking the average daily flow (gpd), multiplying by the value in mg/L of that constituent, then converting mg/L to lbs. by dividing by .264 (1 L = .264 gal), then dividing by 453,952 (1 lb. = 453,592 mg). We show a comparison between North Webster & Knapp Lake, Knapp Lake & East Webster, and North Webster & East Webster. We also show a percentage of Knapp Lake vs. North Webster, and East Webster vs. North Webster, as well as a percentage change between each comparison. The same calculations and comparisons were done for peak flow, but these are listed in the 'Lakes Comparison – peak' tab. Overall, these averages show that both Knapp Lake and East Webster Lake will only make up a small percentage of the overall North Webster WWTP capacity.

Finally, the 'Allowance vs. Calculation' tab provides the allowed flows, CBOD, TSS, and Phosphorus amounts provided either in the Ordinance or the interlocal agreement between Knapp Lake and North Webster. These values are compared to the design flows and calculated quantities and loadings as presented in the 'lakes comparison' tabs. The values shown are based on weekly mg/L, daily mg/L, weekly lbs./day, and daily lbs./day. We show the difference between the ordinance/legal agreement and the total flow for Knapp Lake and East Webster combined. Furthermore, we also show a percentage of the totals and compare it to the North Webster WWTP Effluent Permit Limits. The data provided in this table also shows that the flows for Knapp Lake and East Webster Lake will be well under the allowed amount listed either in the Ordinance, interlocal agreement, or NPDES Permit.

| Influent Hydraulic Loading | Average Daily Flow (gpd) | BOD (mg/L) - weekly | BOD (lbs/day) - daily | Ammonia - N (mg/L) - weekly | Ammonia - N (lbs/day) - daily | TSS (mg/L) - weekly | TSS (lbs/day) - daily | Phosphorus (mg/L) - weekly | Phosphorus (lbs/day) - daily |
|----------------------------|--------------------------|---------------------|-----------------------|-----------------------------|-------------------------------|---------------------|-----------------------|----------------------------|------------------------------|
| North Webster - Existing | 366,083 | 114.2 | 349.0 | 15.3 | 46.8 | 117.5 | 359.2 | 3.4 | 10.5 |
| Knapp Lake | 11,223 | 116.1 | 10.9 | 41.9 | 3.9 | 176.3 | 16.5 | 6.7 | 0.6 |
| | | | | | | | | | |
| Percentage (%) | 3.1% | | 3.1% | | 8.4% | | 4.6% | | 6.0% |

| Influent Hydraulic Loading | Average Daily Flow | BOD (mg/L) - weekly | BOD (lbs/day) - daily | Ammonia - N (mg/L) - weekly | Ammonia - N (lbs/day) - daily | TSS (mg/L) - weekly | TSS (lbs/day) - daily | Phosphorus (mg/L) - weekly | Phosphorus (lbs/day) - daily |
|----------------------------|--------------------|---------------------|-----------------------|-----------------------------|-------------------------------|---------------------|-----------------------|----------------------------|------------------------------|
| Knapp Lake | 11,223 | 116.1 | 10.9 | 41.9 | 3.9 | 176.3 | 16.5 | 6.7 | 0.6 |
| East Webster - Proposed | 19,302 | 200.0 | 32.2 | 42.0 | 6.8 | 200.0 | 32.2 | 8.0 | 1.3 |

| Influent Hydraulic Loading | Average Daily Flow | BOD (mg/L) - weekly | BOD (lbs/day) - daily | Ammonia - N (mg/L) - weekly | Ammonia - N (lbs/day) - daily | TSS (mg/L) - weekly | TSS (lbs/day) - daily | Phosphorus (mg/L) - weekly | Phosphorus (lbs/day) - daily |
|----------------------------|--------------------|---------------------|-----------------------|-----------------------------|-------------------------------|---------------------|-----------------------|----------------------------|------------------------------|
| North Webster - Existing | 366,083 | 114.2 | 349.0 | 15.3 | 46.8 | 117.5 | 359.2 | 3.4 | 10.5 |
| East Webster - Proposed | 19,302 | 200.0 | 32.2 | 42.0 | 6.8 | 200.0 | 32.2 | 8.0 | 1.3 |
| | | | | | | | | | |
| Percentage (%) | 5.3% | | 9.2% | | 14.5% | | 9.0% | | 12.3% |

| | | | | | | | | | |
|--------|------|--|------|--|------|--|------|--|------|
| change | 2.2% | | 6.1% | | 6.1% | | 4.4% | | 6.3% |
|--------|------|--|------|--|------|--|------|--|------|


| Effluent Hydraulic Loading | Average Daily Flow (mgd) | BOD (mg/L) - weekly | BOD (lbs/day) - daily | Ammonia - N (mg/L) - weekly | Ammonia - N (lbs/day) - daily | TSS (mg/L) - weekly | TSS (lbs/day) - daily | Phosphorus (mg/L) - weekly | Phosphorus (lbs/day) - daily |
|---|--------------------------|---------------------|-----------------------|-----------------------------|-------------------------------|---------------------|-----------------------|----------------------------|------------------------------|
| North Webster Influent | 366,083 | 114.17 | 349.0 | 15.3 | 46.8 | 117.5 | 359.2 | 3.4 | 10.5 |
| North Webster Effluent | 315,772 | 4.97 | 13.1 | 0.17 | 0.5 | 4.44 | 11.7 | 0.59 | 1.6 |
| | | | | | | | | | |
| Percentage (%) of Removal from Influent to Effluent | 86.26 | | 96.25 | | 99.03 | | 96.74 | | 85.05 |

| | Avg Daily Flow (gpd) | BOD (mg/L) - weekly | BOD (lbs/day) - daily | Ammonia - N (mg/L) - weekly | Ammonia - N (lbs/day) - daily | TSS (mg/L) - weekly | TSS (lbs/day) - daily | Phosphorus (mg/L) - weekly | Phosphorus (lbs/day) - daily |
|--|----------------------|---------------------|-----------------------|-----------------------------|-------------------------------|---------------------|-----------------------|----------------------------|------------------------------|
| Ordinance/Legal Agreement | 37,350 | 240 | 74.86 | n.a. | | 240 | 74.86 | 12 | 3.74 |
| Knapp Lake | 11,223 | 116.1 | 10.9 | 41.9 | 3.9 | 176.3 | 16.5 | 6.7 | 0.6 |
| E. Webster | 19,302 | 200.0 | 32.2 | 42.0 | 6.8 | 200.0 | 32.2 | 8.0 | 1.3 |
| Total (Knapp Lake, E. Webster) | 30,525 | | 43 | | 11 | | 49 | | 2 |
| Difference (Allowed amount vs. Total from Knapp Lake/E. Webster) | 6,825 | | 31.7 | | | | 26.1 | | 1.82 |
| Ratio: Total of Knapp Lake/E. Webster to North Webster NPDES Permit Limits | | | 0.61 | | 1.41 | | 0.57 | | 1.92 |
| Percentage (%) of Allowed amount vs. Total from Knapp Lake/E. Webster) | 82% | | 58% | | | | 65% | | 51% |

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX E
INTERLOCAL AGREEMENT

INTERLOCAL COOPERATION AGREEMENTS

2014120194 AGMT \$33.00
12/04/2014 01:08:04P 11 PGS
Deborah A. Wright
Kosciusko County Recorder IN
Recorded as Presented


THIS INTERGOVERNMENTAL COOPERATION AGREEMENT (the "Agreement") is entered into this 21st day of October 2014, by and between North Webster (the "Town"), acting by and through its Town Council, and the Knapp Lake Area Conservancy District (the "District").

WITNESSETH:

WHEREAS, the District is a Conservancy District duly established and operated pursuant to the laws of the State of Indiana, and desires to construct and install a sewage works system to collect sanitary sewage from a service area around and near Knapp Lake ("Knapp Lake Area"), said area being defined, depicted and described on Exhibit "A" attached hereto and incorporated herein, and transport said sanitary sewage to the Town for treatment; and

WHEREAS, the Town is a political subdivision of the State of Indiana, and owns and operates a sewage treatment plant which presently has capacity available for the treatment of sanitary sewage collected within the Knapp Lake Area and desires to reserve capacity for and to accept and treat the sanitary sewage collected by the District in the Knapp Lake Area; and

WHEREAS, I.C. § 36-1-7-1 et. seq. allows for the execution of interlocal cooperation agreements between certain units of government, of which the parties hereto so constitute, and the parties desire to enter into such an agreement to provide for the construction, collection, transportation, capacity reservation, and treatment of sanitary sewage in the Knapp Lake Area.

NOW, THEREFORE, for and in consideration of the mutual promises, covenants and other undertakings set forth hereinafter, the parties agree as follows:

1. **Memorandum of Understanding.** To the extent inconsistent therewith, this Agreement supersedes the Memorandum executed by the parties dated the 11th day of September, 2013. The terms set forth in this Agreement control and establish the responsibilities of the respective parties.

2. **Construction of District's Collection and Transportation Sewage Works.** The District shall, at its sole cost and expense, design and construct, oversee design and construction, and finance all of the sewage works deemed necessary by the District to serve the Knapp Lake Area for the collection and transportation of the sanitary sewage to be accepted and treated by the Town under the terms of this Agreement. Said plans and specifications shall:

a. be submitted to and subject to review and approval of the Town. Said review shall include the right to designate and approve all connection points between the

District's sewage works being constructed and the Town's sewage works as well as the connection structures and all metering devices installed to measure quantity and/or volume of the sanitary sewage being discharged into the Town's sewage works by the District.

b. not be altered in any material way, including addition or deduction there from in the size, scope, materials or capacity of the sewage works, after review and approval by the Town as provided herein, without the written consent of the Town. The term "Material" as used in this section shall mean any alteration, addition, or deduction that would change the location of any connection point; require additional improvements to the Town's sewage treatment plant other than as set forth in Paragraph below, as determined by the Town's engineer; or that would have a significant, adverse affect on the Town's ability to obtain any necessary governmental approvals, permits, easements for design and construction, or other regulatory order or action necessary for the treatment of the sanitary sewage from the Knapp Lake Area.

c. shall require materials for any portion of the sewage works to be constructed within the corporate limits of the Town to be of a quality which at least meets current generally accepted standards in the industry and be at least equivalent in quality and construction to those used by the Town in its sewage works. All work and materials shall be subject to inspection by the Town or its agents.

All necessary governmental approvals, permits, easements for design and construction, or other regulatory order or action necessary for the construction of the sewage works to collect and transport the sanitary sewage for the Knapp Lake Area shall be the sole responsibility and cost of the District. Each party shall cooperate and work in good faith with the other to provide any information deemed reasonably necessary to timely and completely apply for, pursue, and obtain said approvals, permits, easements for design and construction, or other regulatory order or action.

3. **Construction of Town's Treatment Sewage Works.** Upon receipt in full of the payment set forth in Paragraph 5 below, the Town shall, at its sole cost and expense, design and construct, oversee design and construction, and finance all of the sewage works deemed necessary by the Town for the capacity reservation and treatment of the sanitary sewage to be accepted and treated by the Town under the terms of this Agreement.

All necessary governmental approvals, permits, easements for design and construction, or other regulatory order or action necessary for the construction of the sewage works to treat the sanitary sewage from the Knapp Lake Area shall be the sole responsibility and cost of the Town. Each party shall cooperate and work in good faith with the other to provide any information deemed reasonably necessary to timely and completely apply for, pursue, and obtain said approvals, permits, easements for design and construction, or other regulatory order or action.

4. **Monthly User Charge.** In addition to any other charge set forth in this Agreement, the Town shall charge the District, and the District shall pay to the Town:

a. **Monthly User Charge:** a monthly flat fee of \$3,987.00 for up to 1,120,500 gallons per month and \$8.38 per 1000 gallons discharged for all metered flow over 1,120,500 gallons. See Exhibit B attached hereto which demonstrates the Calculation of Monthly User Charge.

Whenever the Town shall consider adjusting the Monthly User Charge, or any part thereof, The Town shall notify the District in writing of its intent to adjust said charge or charges and the proposed amount or amounts of any adjustment at least 120 days prior to the date the Town proposes to make the adjustment effective in order to allow time for good faith negotiations between the parties that may be necessary and for any adjustment of rates the District charges its users that may be required as a consequence of any increases proposed by the Town. The Town shall make available to the District or it's duly appointed representatives all necessary information. No adjustment of rates shall become effective as against the District until said notice has been given and all provisions of applicable statutes regarding the setting of rates and charges have been satisfied by the Town.

The District shall make all payments by the due date established on the invoice or as set forth in the applicable Town ordinance from which the charge is based.

5. **Capital Costs Charge.** As further inducement for the Town to enter into this Agreement, to make the improvements deemed necessary by the Town to its sewage treatment plant to accept sanitary sewage collected by the District within the Knapp Lake Area, and to reserve capacity within the Town's sewage treatment plant of 37,350 gallons per day, the District shall pay to the Town at the time of the closing of their permanent financing with USDA, a one-time charge of Three Hundred Seventy-Two Thousand Dollars and 00/100 (\$372,000.00).

6. **Capital Cost Charge Review.** Within ninety days after the third anniversary of the district beginning to discharge into the Town's sewer treatment system, the parties will meet to review the user charge and capital costs charge set out herein. The parties acknowledge that the user charge and capital cost charge set out herein were calculated based upon an estimated cost of construction and anticipated flow. Therefore, the user charge and capital cost charge shall be recalculated using actual cost of construction and actual average discharge flow. In the event the user charge or capital cost charge vary by more than five percent from the charges calculated based upon initial estimates used in this agreement, the parties will "true up" such charges by adjustment of the Monthly User Charge or an additional payment by the District or a credit issued by the Town in regard to the corrected Capital Cost Charge.

7. **Flow Meter.** The District, at its sole expense, shall furnish, install, operate and maintain a flow meter and any necessary ancillary equipment or devices to measure the quantity of sewage delivered from the Knapp Lake Area to the Town. Plans

3.56/1000 GAL.

1,120,500
÷ 30
37350
(Purchased)

and specifications for said meter and ancillary equipment or devices shall be prepared by the District's engineer and submitted to the Town for approval. The Flow Meter shall be installed at the end of the District's force main, immediately prior to discharge into the Town's sewage works. The District shall have the right to inspect and observe the operation of the meter during normal business hours or at such other time as the parties may agree for purposes of determining compliance and monthly reading. The Town shall read the meter and maintain the records of the meter's operation for a period of no less than five years, and said records shall be available to the District at all times.

The District shall, at its expense, calibrate the meter once every twelve months and provide the results of said calibration to the Town as soon as they are available thereafter. In the event that the Town or District desires a meter calibration other than the annual calibration, such calibration shall be performed. The cost of said additional calibration shall be borne by the parties as follows: If the result falls within the usual and customary range of tolerance (5%) up or down), the cost of calibration shall be borne by the requesting party. If the results of the calibration fall outside the usual and customary range of tolerance, the cost of the calibration shall be borne by the District.

In the event that the meter is found to be operating outside the usual and customary range of tolerance, previous measures determined to be inaccurate shall be corrected accordingly for no more than two months prior to the test. If a meter fails to register during a monthly period, the charge for treatment shall be based on the amount of sewage treated for the same monthly period of the calendar year preceding the malfunction. If the prior calendar year's monthly period is not available, the charge shall be based on the average monthly flow of the twelve months prior to the malfunction. Each party shall notify the other of a meter malfunction immediately.

8. **Automatic Sampler.** The District, at its sole expense, shall furnish, install, and maintain an automatic sampler and any necessary ancillary equipment or devices to measure the consistency of sewage delivered from the Knapp Lake Area to the Town. Plans and specifications, including location, for said sampler and ancillary equipment or devices shall be prepared by the District's engineer and submitted to the Town for review and approval. The Town shall be responsible for the sampling and testing of the sanitary sewage. The Town shall sample and test in conjunction with and at the intervals established for its NPEDES permit. The District shall have the right to inspect the testing facilities and procedures of the Town, including inspecting all lab results. Further, the District reserves the right to perform their own testing for comparison to the Town's test results.

9. **Sewage Capacity and Treatment.** Upon the continued accomplishment of all prerequisites contained in this Agreement to be performed by the District, and in the absence of any default by the District under the terms of this Agreement, the Town agrees that it will provide sewage treatment capacity within its sewage treatment plant up to 37,350 gallons per day. The District shall convey and deliver all sanitary sewage collected within the Knapp Lake Area to the Town in a form suitable for passage into and through the Town's sewage treatment plant and the Town shall accept for treatment said

sanitary sewage. The Town further agrees that once it accepts sewage from said Knapp Service Area, it will continuously provide such service in accordance with the provisions of this Agreement.

10. **Disconnection.** Once this Agreement is executed and the District's sewage works connected to the Town's sewage works, the District's sewage works connected cannot be withdrawn from the Town's sewage works system by the District without the written consent of the Town, and the District may not make use of any other sewage disposal system without the written consent of the Town.

11. **Limitations On Use.** The District and the Town agree as follows:

a. The District's sewage works system subject to this Agreement shall be used for disposal of residential sanitary sewage or waste water only and neither the parties hereto, their successors or assigns, nor any future owner of any real estate served by said sewer shall at anytime discharge or permit to be discharged or to flow into said sewer, any water runoff caused by natural precipitation or anything other than residential sanitary sewage or waste water generated from within the District also described as the Knapp Lake Area.

b. The quality of residential sanitary sewage or waste water delivered at the Town's sewage treatment facility must be consistent with that of normal residential establishments. The use of the District's sanitary sewer and delivery of sanitary sewage into the Town's sewage works, shall be subject to and in strict accordance with the Town's Sewer Use Ordinance, as amended from time to time, and all other ordinances in effect or adopted by the Town in the future, all of which are incorporated herein by reference.

c. The District shall not connect or allow to be connected to the Town's sewage works, by lateral connection or otherwise, any sewage works that will serve any property or properties located outside the Knapp Lake Area as defined in Exhibit A; and shall not discharge or allowed to be discharged into the Town's sewage works and sewage or other substance from any property or properties located outside the Knapp Lake Area, as defined in Exhibit A.

12. **Operation and Maintenance.** The District shall operate, service, and maintain, at its sole expense, the District's sewage collection and transportation works constructed by the District and serving the Knapp Lake Area. The Town shall operate, service, and maintain, at its sole expense, the Town's sewage treatment works constructed by the Town.

13. **Excessive Pollutant Charge.**

a. In the event sanitary sewage is received by the Town from the District in excess of domestic loadings, biochemical oxygen demand ("BOD"), total suspended solids or any other limit set out in the Town's then current Sewer Rate Ordinance, then

the District shall pay to the Town the rate per pound therefore as established in the Town's Sewer Rate Ordinance as amended from time to time, which is attached hereto as Exhibit C and incorporated herein by reference. In the event of future changes in the cost of treatment of total suspended solids and BOD based upon the studies in conformity with EPA requirements, then the District shall be subject to any such increased or decreased charges for such excessive pollutants. In the event that future charges are made for other excessive pollutants received by the District and such charges are uniformly applied throughout the region served by the Town, then the District shall be subject to such charges and such charges shall be set forth in the Town's Sewer Rate Ordinance.

b. The District shall not convey any Sanitary Sewage or other matter to the Town's sewage system for treatment which (i) is prohibited by the Town's Sewer Use Ordinance or this Agreement, (ii) would cause the Town to be in violation of its NPEDES permit, or (iii) would cause damage to the Town's sewage system. In the event the District violates this provision, the Town shall have the right and power to take all necessary action to cause the District to (a) cease violating this provision, including seeking injunctive relief, specific performance and any other remedies necessary to enforce this provision and (b) compensate the Town for (i) any damage caused to the Town's sewage system, (ii) legal fees incurred in enforcing this provision, (iii) any penalties or fines resulting from a violation of this provision, and (iv) any other damages accruing to the Town as a result of a violation of this provision.

14. **Indemnification.** Each party shall indemnify and hold harmless the other party and its officials, employees, and agents, against and with respect to any claims, actions, demands, losses, costs, attorney fees, expenses, liabilities, penalties, judgments, damages, and expenses arising out of or involving the maintaining and operating of each party's respective sewage works.

15. **Town Council Approval.** It is understood and agreed that this Agreement is in all respects subject to approval by the Town Council, North Webster, Indiana, by duly adopted resolution or ordinance, and if such resolution or ordinance is not adopted within sixty (60) days after execution thereof, this Agreement shall be null and void and of no further force or effect.

16. **District Approval.** It is understood and agreed that this Agreement is in all respects subject to approval by the District, by duly adopted resolution, and if such resolution is not adopted within sixty (60) days after execution thereof, this Agreement shall be null and void and of no further force and effect.

17. **Severance.** District and Town agree that if any provision of this Agreement is declared or determined to be null, void, inoperative, illegal or invalid for any reason, the validity of the remaining parts, terms or provisions will not be affected thereby and they will retain their full force and effect, and said null, void, inoperative, illegal or invalid part, term or provision will not be deemed to be part of this Agreement.

18. **Construction of Agreement.** Each party to this Agreement acknowledges that it has read, or has had the opportunity to read, this Agreement. The parties to this Agreement acknowledge that this Agreement reflects the terms as agreed to by the parties hereto. In the event a term or terms of this Agreement is considered ambiguous, neither party hereto, nor their respectable counsel, will be considered the draftsman of this Agreement for the purpose of causing the terms of this Agreement to be construed against a party hereto. This Agreement shall not be construed as approving any developments, connections, or their uses in the area served by the District. The Agreement does not release any organization or entity from compliance with any federal, state law, or local law (including ordinances, building codes, or subdivision control ordinances).

19. **Contingencies.** This Agreement is contingent upon the District being able to secure the financing necessary to construct and install a sewage collection and transmission system in the Knapp Lake Area. In the event the District is unable to secure said financing or in the event the Board of Trustees of the District determines that the cost of construction as well as the cost of operating and maintaining the aforementioned system is not financially feasible for the users in the Knapp Lake Area, this Agreement shall not become effective and neither party shall be bound by it. In the event the District secures financing and elects to proceed with construction of the construction and installation of the sewage collection and transmission system in the Knapp Lake Area, this Agreement shall become effective upon final completion of said construction.

In the event that the District cannot secure financing or determines that the cost of operating and maintaining the aforementioned system is not financially feasible for the users in the Knapp Lake Area, then the Town shall have no obligation to complete the upgrades to their system required to handle the sanitary sewage from the District.

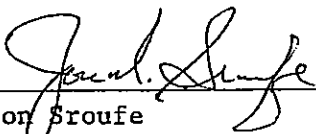
This Agreement is further contingent upon the Town being able to secure the approval of this Agreement by IDEM, and any other necessary party, pursuant to I.C. § 36-9-23-16(b) or other statute, as to the sufficiency of the Town's sewage treatment plant to accept and treat the sanitary sewage received from the District under this Agreement. In the event the Town is unable to secure said approval of this Agreement from IDEM, this Agreement shall not become effective and neither party shall be bound by it.

20. **Binding Nature.** This Agreement is binding upon District and Town and will inure to the benefit of District and Town and their respective administrators, officers, representatives, directors, officers, officials, partners, affiliates, employees, agents, servants, successors, predecessors, assigns, representatives, insurers, and reinsurers.

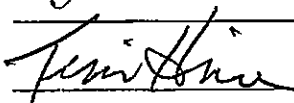
21. **Duration.** Except as otherwise set forth in this Agreement, the duration of this Agreement shall be from the date of its recording after final approval by the appropriate bodies, and thereafter for a periods of no less than forty (40) years from the effective date of this Agreement. Thereafter, this Agreement may be terminated by either party upon at least twelve (12) months written notice.

22. Recording. After execution this Agreement shall immediately recorded at the Noble County Recorder's Office and Kosciusko County Recorder's Office.

TOWN COUNCIL OF THE TOWN
NORTH WEBSTER, INDIANA



Jon Sroufe

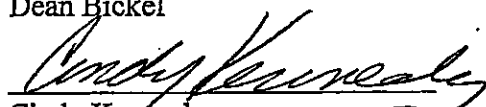


Tim Hine

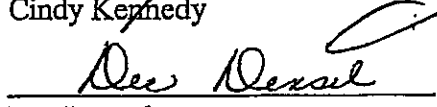
BOARD OF DIRECTORS OF THE
KNAPP LAKE CONSERVANCY
DISTRICT



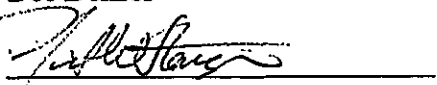
Dean Bickel



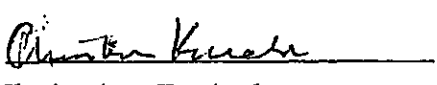
Cindy Kennedy



Dee Densel




Nick Stranger



Christina Kreischer

Attest:


Secretary _DDee Densel

*This instrument prepared by: Matthew R. Shipman, Attorney No. 20664-49
I affirm, under the penalties for perjury, that I have taken reasonable care to redact each Social Security
number in this document, unless required by law. Matthew R. Shipman*

Part of Section 4 and Section 9 in Township 33 North, Range 8 East, Washington Township, Noble County, Indiana, more particularly described as follows:

Beginning at the Southeast corner of the Northeast Quarter of said Section 4, Township 33 North, Range 8 East, said point also being the Northeast corner of the Northeast Quarter of said Section 9, Township 33 North, Range 8 East, Washington Township, Noble County, Indiana, thence South along the East line of said Northeast Quarter of Section 9 to the Southeast corner of Harper Addition; thence West along the South line of Harper Addition to the Southwest corner of Harper Addition; thence continuing West through parcel #57-18-09-100-005.000-018, to a point on the West line of said Northeast Quarter of Section 9, said point also being on the East line of the Northwest Quarter of Section 9; thence continuing West, through parcel #57-18-09-400-002.000-018, to a point located 200 feet west of the East line of the Northwest Quarter of said Section 9; thence North parallel with the East line of the Northwest Quarter of said Section 9 to the North line of said Section 9 and also the South line of the Southwest Quarter of Section 4 and also being a point on the South line of parcel #57-18-04-300-299.000-018; thence West along the South line of parcel #57-18-04-300-299.000-018 to the Southwest corner of parcel #57-18-04-300-299.000-018; thence North along the West line of parcel #57-18-04-300-299.000-018, to the Northwest corner of parcel #57-18-04-300-299.000-018, said point also being the Southwest corner of the Mayfair "C" Addition to Knapp Lake; thence North along the West line of said Mayfair "C" Addition to the Northwest corner of said Mayfair "C" Addition; thence North across Knapp Lake to the Southwest corner of Knapp Lake Addition; thence North along the West line of Knapp Lake Addition to the Northwest corner of Knapp Lake Addition; thence East along the North line of said Knapp Lake Addition to the East line of the Southwest Quarter of Section 4; thence continuing East to the East right-of-way line of County Road 90 South; thence South along the East right-of-way line of County Road 90 South to a point located 1,160' south of the North line of the Southeast Quarter of Section 4; thence East parallel with said North line of the Southeast Quarter of Section 4, through parcels #57-18-04-200-076.000-018 and #57-18-04-200-077.000-018, to a point on the East line of the Southeast Quarter of Section 4; thence South to the Point of Beginning.

EXHIBIT

A

KNAPP LAKE CONSERVANCY DISTRICT
CALCULATION OF MONTHLY USER CHARGE

| | Town of North Webster (1) | Knapp Lake Conservancy District | |
|---|---------------------------------|---------------------------------------|-----|
| Operating disbursements | \$583,790 | \$43,784 | (1) |
| Taxes other than income | 4,100 | 307 | (1) |
| Extensions and replacements | 70,000 | 3,750 | (1) |
| Proposed annual debt service | 336,165 | | (2) |
| | <hr/> | | |
| Total Cash Revenue Requirements | \$994,055 | \$47,841 | |
| Annual billing charge | | <hr/> | (3) |
| | | \$47,841 | |
| Annual usage charges | | <hr/> | |
| Monthly flat rate billing for up to 37,350 gallons per day (1) | | \$3,987 | |
| | | <hr/> | |
| Charge for flow in excess of 37,350 gallons per day (per 1,000 gallons) (1) | | \$8.38 | (1) |
| | | <hr/> | |

(1) Per London Witte Group's "Revenue Requirements Study" dated May 9, 2014.

(2) Proposed annual debt service:

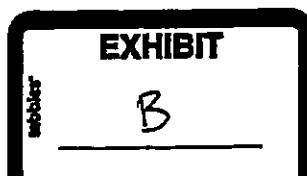
| | |
|---|-------------------|
| Knapp Lake Share of Construction Costs: | |
| Table V of May 2014 P.E.R. - Wastewater Treatment Plant - Sum of Lines 1 - 13 | \$1,125,000 |
| Table V of May 2014 P.E.R. - Lift Station #10 - Sum of Lines 1 - 3 | 430,000 |
| Total Treatment Plant and Lift Station #10 construction costs | <hr/> \$1,555,000 |

| Share of Non-Construction and Contingencies (Table VI of P.E.R.): | Total Cost | Pro Rata Allocation* | |
|---|------------|-------------------------|-----------------|
| Non-construction costs | \$496,000 | 62.26% | \$308,810 |
| Contingencies | 249,765 | 62.26% | 155,504 |
| Total non-construction and contingencies | | | <hr/> \$464,314 |

*Based on the treatment plant and lift station #10 costs compared to the total project (\$1,555,000/\$2,497,650 = 62.26%)

| | |
|---|-----------------|
| Total treatment plant and lift station #10 project costs | \$2,019,314 |
| Times: District % share of total project | 7.5% |
| District share of total project to be paid upfront in form of a capital buy-in fee. | <hr/> \$151,449 |

(3) The District's share of billing costs are included in the 7.5% share of operating disbursements.



ORDINANCE NO. 2015-602

SEWER RATE ORDINANCE

AN ORDINANCE ESTABLISHING A SCHEDULE OF RATES AND CHARGES TO BE COLLECTED BY THE KNAPP LAKE AREA CONSERVANCY DISTRICT FROM THE OWNERS OF PROPERTY SERVED BY THE SEWAGE WORKS OF SAID DISTRICT AND OTHER MATTERS CONNECTED THEREWITH.

WHEREAS, the District proposes to construct a Sewage Works for the purpose of collecting and disposing of the sewage of the District in a sanitary manner and proposes to construct improvements thereto; and

WHEREAS, it is necessary to establish a schedule of rates and charges so as to produce sufficient revenue to pay expenses of operation and maintenance, debt service requirements, and to provide funds for necessary replacements and improvements to the Sewage Works;

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE KNAPP LAKE AREA CONSERVANCY DISTRICT, NOBLE COUNTY, INDIANA:

Section 1. Unless the context specifically indicates otherwise, the meaning of terms used in this Ordinance shall be as follows:

- a) "Board" shall mean the Board of Directors of the Knapp Lake Area Conservancy District, or any duly authorized officials acting in its behalf.
- b) "District" shall mean the Knapp Lake Area Conservancy District, Noble County, Indiana, acting by and through its Board of Directors.
- c) "Debt Service Costs" shall mean the average annual principal and interest payments on all proposed bonds or other long-term capital debt.
- d) "Industrial Wastes" shall mean the wastewater discharges from industrial, trade or business processes as distinct from employee wastes or wastes from sanitary conveniences.
- e) "BOD" (or Biochemical Oxygen Demand) shall have the same meaning as defined in the Sewer Use Ordinance.
- f) "Connection Charge" shall mean up-front capital fee owed by any property owner upon filing an application to connect or reconnect into the District's sewer system.
- g) "Phosphorus" shall have the same meaning as defined in the Sewer Use Ordinance.

- h) "S.S." (or Suspended Solids) shall have the same meaning as defined in the Sewer Use Ordinance.
- i) "NPDES (National Pollutant Discharge Elimination System) Permit" shall have the same meaning as defined in the Sewer Use Ordinance.
- j) "Operation and Maintenance Cost" include all costs, direct and indirect, necessary to provide adequate wastewater collection, transport and treatment on a continuing basis and produce discharges to receiving waters that conform with all related Federal, State and local requirements.
- k) "Other Service Charges" shall mean tap charges, connection charges, area charges, and other identifiable charges other than excessive strength surcharges.
- l) "Person" shall mean any and all persons, natural or artificial, including any individual, firm, company, municipal or private corporation, association, society, institution, enterprise, governmental agency or other entity.
- m) "Replacement Costs" shall mean the expenditures for obtaining and installing equipment, accessories or appurtenances which are necessary during the useful life of the treatment works to maintain the capacity and performance for which such Works were designed and constructed.
- n) "Shall" is mandatory; "May" is permissive.
- o) "Sewage" shall have the same meaning as defined in the Sewer Use Ordinance.
- p) "Sewer Use Ordinance" shall mean a separate and companion enactment to this Ordinance, which regulates the connection to the use of public and private sewers.
- q) "User Class" shall mean the division of wastewater treatment customers by source, function, waste characteristics, and process or discharge similarities.

Residential User - shall mean a user of the treatment works whose premises or building is used primarily as a residence for one or more persons, including all dwelling units, etc.

Commercial User - shall mean any establishment involved in a commercial enterprise, business or service, which based on a determination by the District discharges primarily segregated domestic wastes or wastes from sanitary conveniences.

Institutional User - shall mean any establishment involved in a social, charitable, religious, and/or educational function, which, based on a determination by the District, discharges primarily segregated domestic wastes or wastes from sanitary conveniences.

Governmental User - shall mean any Federal, State or local governmental user of the wastewater treatment works.

Industrial User - shall mean any manufacturing or processing facility that discharges industrial waste to a wastewater treatment works.

Section 2. Every person whose premises connects to, uses, is required to be connected to, or is served by said Sewage Works shall be charged for the service provided. These charges are established for each user class, as defined, in order that the Sewage Works shall recover from each user and user class, revenue, which is proportional to its use of the treatment works in terms of peak requirements, volume, and load. User charges are levied to defray the cost of operation and maintenance of the treatment works. User charges shall be uniform in magnitude within a user class.

The various classes of users of the treatment works for the purpose of this Ordinance shall be as follows:

Class I - Residential
Commercial
Governmental
Institutional
Industrial

Section 3. For the availability or use of and service rendered by the Sewage Works, rates and charges shall be collected from the owners of each and every lot, parcel of real estate or building that is connected or required to be connected with the District's sanitary system, or otherwise discharges sanitary sewage, industrial wastes, water or other liquids, either directly or indirectly, into the sanitary sewage system of the Knapp Lake Area Conservancy District. Such rates and charges include user charges, debt service costs, and other service charges, which rates and charges shall be payable as hereinafter provided and shall be in an amount determined as follows:

- a) The sewage rates and charges shall be based on the quantity of water used on or in the property or premises subject to such rates and charges as the same is determined by equivalent single-family dwelling units. Sewage service bills shall be rendered once each month (or period equaling a month). The schedule on which said rates and charges shall be determined is as follows:

ALL CLASS I USERS

| | Monthly Rate | | | |
|---|------------------------------|------------------------|-------------------------|---------------|
| | <u>Equivalent Factor</u> | <u>User Charge</u> | <u>Debt Service</u> | <u>Totals</u> |
| Residential: | | | | |
| Single-family residence/unit | 1.00 | \$65.58 | \$24.27 | \$89.85 |
| Apartments/unit | 1.00 | 65.58 | 24.27 | 89.85 |
| Mobile home court/space available for rent | 1.00 | 65.58 | 24.27 | 89.85 |
| Duplexes/unit | 1.00 | 65.58 | 24.27 | 89.85 |
| Commercial: | | | | |
| Barber or beauty shop: | | | | |
| First 3 employees | 1.00 | 65.58 | 24.27 | 89.85 |
| Each additional employee | 0.25 | 16.40 | 6.05 | 22.45 |
| Retail establishments: | | | | |
| First 3 employees | 1.00 | 65.58 | 24.27 | 89.85 |
| Each additional employee | 0.25 | 16.40 | 6.05 | 22.45 |
| Gasoline service station: | | | | |
| First 3 employees | 1.00 | 65.58 | 24.27 | 89.85 |
| Each additional employee | 0.25 | 16.40 | 6.05 | 22.45 |
| Laundromats & washeterias/washer | 0.75 | 49.19 | 18.21 | 67.40 |
| Professional offices: | | | | |
| First 3 employees | 1.00 | 65.58 | 24.27 | 89.85 |
| Each additional employee | 0.25 | 16.40 | 6.05 | 22.45 |
| Restaurants, drive-ins, bars, and organizations with eating and/or drinking facilities: | | | | |
| First 2 employees | 1.00 | 65.58 | 24.27 | 89.85 |
| Each additional employee | 0.25 | 16.40 | 6.05 | 22.45 |
| Service stations/auto repair: | | | | |
| Without car wash: | | | | |
| First 3 employees | 1.00 | 65.58 | 24.27 | 89.85 |
| Each additional employee | 0.25 | 16.40 | 6.05 | 22.45 |
| With car wash: | | | | |
| Per car wash bay | 2.50 | 163.96 | 60.69 | 224.65 |
| Shop or office in residence | 1.00 | 65.58 | 24.27 | 89.85 |
| Campground - per campsite available | 0.30 | 19.67 | 7.28 | 26.95 |
| Institutional: | | | | |
| Schools per pupil enrolled | 0.05 | 3.28 | 1.22 | 4.50 |
| Churches and other religious organizations without eating and/or drinking facilities | | | | |
| For each 200 average attendees, or fraction thereof | 1.00 | 65.58 | 24.27 | 89.85 |
| Governmental: | | | | |
| Offices: | | | | |
| First 3 employees | 1.00 | 65.58 | 24.27 | 89.85 |
| Each additional employee | 0.25 | 16.40 | 6.05 | 22.45 |

ALL CLASS I USERS (cont'd.)

| | Monthly Rate | | | |
|---------------------------|------------------------------------|------------------------------|-------------------------------|---------------|
| | <u>Equivalent</u> <u>Factor</u> | <u>User</u> <u>Charge</u> | <u>Debt</u> <u>Service</u> | <u>Totals</u> |
| Post Office: | | | | |
| First 3 employees | 1.00 | \$65.58 | \$24.27 | \$89.85 |
| Each additional employee | 0.25 | 16.40 | 6.05 | 22.45 |
| Fire Department | 1.00 | 65.58 | 24.27 | 89.85 |
| Industrial: | | | | |
| Manufacturing - unmetered | | | | |
| First 3 employees | 1.00 | 65.58 | 24.27 | 89.85 |
| Each additional employee | 0.25 | 16.40 | 6.05 | 22.45 |

- b) The monthly rates and charges provided herein shall be applied throughout the year based upon the maximum sewage service required in any month in any calendar year. For example, the user charges based upon employment shall be applied throughout the year based upon the maximum employment of the user for such single maximum employment month, and such maximum usage shall be applied through the year.
- c) In order to produce an amount sufficient to meet debt service on the revenue bonds and other expenses, payable prior to the completion of the Sewage Works, beginning with the first month after the District has closed on interim financing with the Indiana Bond Bank, the owners of each and every lot, parcel of real estate or building to be connected with the District's sanitary sewage system as a result of construction of said Sewage Works, shall pay, each month, a rate of \$26.30 per equivalent single family dwelling unit. Beginning with the first month after substantial construction completion or after the District has closed on the USDA loan, whichever occurs first, the full rates and charges shall become effective for such lot, parcel of real estate or building.
- d) In the event checks are returned as a result of insufficient funds, a fee will be charged in the amount of twenty-five dollars (\$25.00) per occurrence.
- e) The owner of any lot, parcel of real estate or building connecting to the Sewage Works or any owner of any lot, parcel of real estate or building reconnecting an abandoned connection shall, prior to being permitted to make a connection or reconnection, pay a permit/inspection fee in the amount of seventy-five dollars (\$75.00) for each connection.
- f) The owner of each lot, parcel, real property, or any building or structure located thereon not included as part of the original project constructing the Sewage Works, not previously connected to the Sewage Works, or who will introduce increased sanitary sewage flow into Sewage Works from said lot, parcel, real property, building or structure shall, prior to being permitted to connect to the Sewage Works either directly by a new physical connection to the Sewage Works, such as a tap-in, or indirectly through an existing physical connection to the Sewage Works, pay a connection charge. Said charge shall be in the amount as

reflected in Exhibit A for each equivalent single family dwelling unit (ESFDU) assignable to the type of use plus the cost to purchase any equipment necessary to connect the property, the cost to install said equipment and the cost to disable and abandon to the District's satisfaction any septic or other private sewage collection and treatment system located on the property. The number of ESFDUs assignable to the lot, parcel, real property, building or structure shall be determined by reference to the user classifications established in the Rate Ordinance of the District that is in effect at the time the owner applies to connect.

The Board of Directors of the District now finds said connection charge to be a just and equitable charge, as that term is defined by Indiana law, and a reasonable, necessary, and equitable means of recovering a proportional share of the District's capital costs in constructing the Sewage Works or expansions thereto, and any local or lateral sewers adequate to serve the lot, parcel, real property, building or structure.

Section 4. In order that the rates and charges may be justly and equitably adjusted to the service rendered to users, the District shall base its charges also on strength and character of the stronger-than-normal domestic sewage and wastes which it is required to treat and dispose of. For commercial, governmental, institutional or industrial users the District may require the user to determine the strength and content of all sewage and wastes discharged, either directly or indirectly into the sanitary sewage system, in such manner, by such method and at such times as the District may deem practicable in light of the conditions and attending circumstances of the case, in order to determine the proper charge. The user shall furnish a central sampling point available to the District at all times.

- (a) Normal sewage domestic waste strength should not exceed suspended solids in excess of 240 milligrams per liter of fluid, biochemical oxygen demand in excess of 240 milligrams per liter of fluid, or phosphorus in excess of 12 milligrams per liter of fluid. Additional charges for treating stronger-than-normal domestic waste shall be made on the following basis:

(1) **Rate Surcharge Based Upon Suspended Solids**

There shall be an additional charge of 3.89 cents (\$0.0389) per pound of suspended solids for suspended solids received in excess of 240 milligrams per liter of fluid.

(2) **Rate Surcharge Based Upon Biochemical Oxygen Demand**

There shall be an additional charge of 26.3 cents (\$0.263) per pound of biochemical oxygen demand for BOD received in excess of 240 milligrams per liter of fluid.

(3) **Rate Surcharge Based Upon Phosphorus**

There shall be an additional charge of \$2.85 per pound of phosphorus received in excess of 12 milligrams per liter of fluid.

- (b) The determination of Suspended Solids, Biochemical Oxygen Demand, Chemical Oxygen Demand, Phosphorus and Ammonia contained in the waste shall be in accordance with the latest copy of Standard Methods for the Elimination of Water, Sewage and Industrial Wastes, as written by the American Public Health Association, the American Water Works Association and the Water Pollution Control Federation, and in accordance with Guidelines Establishing Test Procedures for Analysis of Pollutants, 40 CFR Part 136.

Section 5. Such rates and charges shall be prepared, billed and collected by the District in the manner provided by law and ordinance.

- a) With the exception of the aforementioned connection charge, the rates and charges for all users shall be prepared and billed monthly.
- b) The rates and charges shall be billed to and shall be payable by the owner of each lot, parcel of land, or building that is connected with and uses the Sewage Works, that is to be connected with and use the Sewage Works, that is required by Indiana law and/or local ordinance to be connected with and use the Sewage Works, or that in any way uses or is served by the Sewage Works.
- c) All rates and charges not paid when due are hereby declared to be delinquent, and penalty of ten percent (10%) of the amount of the rates and charges shall thereupon attach thereto. The time at which such rates shall be paid is now fixed at twenty (20) days after the date of mailing of the bill.

Section 6. In order that the rates and charges for sewage services may remain fair and equitable and be in proportion to the cost of providing services to the various users or user classes, the District shall cause a study to be made within a reasonable period of time following the first two years of operation, following the date on which this Ordinance goes into effect. Such study shall include but not be limited to an analysis of the cost associated with the treatment of excessive strength effluents from industrial users, volume and delivery flow rate characteristics attributed to the various users or user classes, the financial position of the Sewage Works, and the adequacy of its revenue to provide reasonable funds for the operation and maintenance, replacements, debt service requirements, and capital improvements to the wastewater treatment systems.

Thereafter, on a biennial basis, within a reasonable period of time following the normal accounting period, the District shall cause a similar study to be made for the purpose of reviewing the fairness, equity and proportionality of the rates and charges for sewage services on a continuing basis. Said studies shall be conducted by officers or employees of the District or by a firm of certified public accountants or a firm of consulting engineers, which firms shall have experience in such studies, or by such combination of officers, employees, certified public accountants or engineers as the District shall determine to be best under the circumstances. The District shall, upon completion of said study, revise and adjust the rates and charges as necessary in accordance therewith, in order to maintain the proportionality and sufficiency of the rates.

Section 7. The District shall make and enforce such by-laws and regulations as may be deemed necessary for the safe, economical and efficient management of the District's sewage system, pumping stations and sewage treatment works, for the construction and use of house sewers and connections to the sewage treatment works, the sewage collection system, and for the regulations, collection and rebating and refunding of such rates and charges.

Section 8. The invalidity of any section, clause, sentence, or provision of this Ordinance shall not affect the validity of any other part of this Ordinance which shall be given effect without such invalid part or parts.

Section 9. This Ordinance shall be in full force and effect from and after its passage, approval, and recording in a publication as provided by law.

PASSED AND ADOPTED BY THE BOARD OF DIRECTORS OF THE KNAPP LAKE AREA CONSERVANCY DISTRICT ON THE 23rd DAY OF September, 2015.

Dean S. S.

Dee Dessel

John H. H.

Christa K.

Christine S. S.

ATTEST:

Dee Dessel

EXHIBIT A

SCHEDULE OF CONNECTION CHARGES

| <u>Year</u> | <u>Charge Per</u> <u>ESFDU</u> |
|-------------|-----------------------------------|
| 2018 | \$ 60 |
| 2019 | 180 |
| 2020 | 300 |
| 2021 | 420 |
| 2022 | 550 |
| 2023 | 680 |
| 2024 | 815 |
| 2025 | 955 |
| 2026 | 1,090 |
| 2027 | 1,235 |
| 2028 | 1,385 |
| 2029 | 1,535 |
| 2030 | 1,680 |
| 2031 | 1,830 |
| 2032 | 1,985 |
| 2033 | 2,155 |
| 2034 | 2,325 |
| 2035 | 2,490 |
| 2036 | 2,660 |
| 2037 | 2,830 |
| 2038 | 3,010 |
| 2039 | 3,190 |
| 2040 | 3,380 |
| 2041 | 3,570 |
| 2042 | 3,755 |
| 2043 | 3,955 |
| 2044 | 4,155 |
| 2045 | 4,360 |
| 2046 | 4,565 |
| 2047 | 4,785 |
| 2048 | 5,005 |
| 2049 | 5,220 |
| 2050 | 5,445 |
| 2051 | 5,685 |
| 2052 | 5,920 |
| 2053 | 6,160 |
| 2054 | 6,400 |
| 2055 | 6,655 |
| 2056 | 6,915 |
| 2057 | 7,170 |

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX F
HISTORICAL AND ARCHAEOLOGICAL REPORT

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX G
WETLAND REPORT

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX H
USFW IPaC

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX I
NRCS - FARMLAND CONVERSION
IMPACT RATING

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX J
PUBLIC HEARING DOCUMENTATION

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX K
SIGNATORY AUTHORIZED
REPRESENTATIVE FORM

**SRF Loan Program
Signatory Authorization Resolution**

Whereas, the Tippecanoe and Chapman Regional Sewer District of Kosciusko County, Indiana, (the “Participant”) has plans for a wastewater infrastructure improvement project to meet State and Federal regulations and the Participant intends to proceed with the construction of such project:

Now, therefore, be it resolved by the Board of Trustees, the governing body of the Participant, that:

1. _____ be authorized to make application for a State Revolving Fund Loan (“SRF Loan”) and provide the SRF Loan Program such information, data and documents pertaining to the loan process as may be required, and otherwise act as the authorized representative of the Participant; and
2. The Participant agrees to comply with State and Federal requirements as they pertain to the SRF Loan Program; and
3. Two certified copies of this Resolution be prepared and submitted as part of the Participant’s Preliminary Engineering Report.

Adopted and Passed by the Board of Trustees of the Utility of Kosciusko County, Indiana, this _____ [insert day] day of _____ [insert month], of 20____ [insert year].

Board of Trustees

, President

Attest: _____, Secretary / Clerk Treasurer

Approved and signed by the Mayor of _____ [insert location], Indiana this _____ [insert day] day of _____ [insert month], of 20 _____ [insert year].

, Mayor

Attest: _____, Secretary / Clerk Treasurer

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX L
PER ACCEPTANCE RESOLUTION

PER ACCEPTANCE RESOLUTION

WHEREAS, the Tippecanoe and Chapman Regional Sewer District of Kosciusko County, Indiana, has caused a Preliminary Engineering Report, PER, dated December 2023 to be prepared by the consulting firm of Jones Petrie Rafinski Corp., and

WHEREAS, said PER has been presented to the public at a public hearing held _____, for their comments; and

WHEREAS, the Board of Trustees finds that there was not sufficient evidence presented in objection to the recommended project in the Preliminary Engineering Report.

Now, THEREFORE BE IT RESOLVED THAT:

The East Webster Lake Area Wastewater Collection System Preliminary Engineering Report dated December 2023 be approved and adopted by the Board of Trustees; and That said PER be submitted to the State Revolving Fund Loan Program for review and approval.

Passed and adopted by the Board of Trustees this _____ day of _____, at their regularly scheduled meeting.

President/Mayor

Member

Member

Member

Attest: _____

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX M
PRELIMINARY RATE ANALYSIS

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX N
SRF FINANCING
INFORMATION FORM

CLEAN WATER SRF PROJECT FINANCING INFORMATION

Proposed Project Costs

| | | |
|----|---|---|
| a. | Collection System cost | \$ 4,410,000 |
| b. | Treatment System cost | \$ _____ |
| c. | Non-Point Source (NPS) cost | \$ _____ |
| d. | Subtotal Construction Cost | \$ _____ |
| e. | Contingencies (should not exceed 10% of construction cost) | \$ 441,000 |
| f. | Non-construction cost e.g., engineering, legal, and financial services related to the project, land costs, start-up costs, and construction inspection | \$ 1,249,800 |
| g. | Total Project Cost (lines d+e+f) | \$ 6,101,000 (rounded to nearest \$10,000) |
| | Ineligible costs (see below) | \$ 50,000 |

Proposed Funding Information

| | | |
|----|------------------------------|---------------------|
| a. | Requested SRF Financing | \$ 6,051,000 |
| b. | Co-Source: _____ | \$ _____ |
| c. | Co-Source: _____ | \$ _____ |
| d. | Co-Source: _____ | \$ _____ |
| e. | Total Funding Sources | \$ 6,051,000 |

CALCULATIONS FOR INELIGIBLE COSTS

The following are not eligible for Clean Water SRF reimbursements:

| | | |
|----|--|------------------|
| 1. | Materials & work done on private property | \$ _____ |
| 2. | Grant applications and income surveys completed for other agencies | \$ _____ |
| 3. | Project components with the primary intent of promoting economic development and growth | \$ _____ |
| 4. | Land Cost (unless for sludge application), <i>note that professional fees associated with acquiring land are eligible</i> | \$ 50,000 |
| 5. | Expenses incurred as a part of forming RWDs, CDs, etc., or changing boundaries, or other non-SRF District activities | \$ _____ |
| 6. | Costs for preparing permits and other tasks unrelated to the SRF project | \$ _____ |
| 7. | Cleaning of equipment/tanks or other routine operation and maintenance activities, <i>note cleaning is eligible if required for proposed construction activities to occur</i> | \$ _____ |
| 8. | Total Ineligible Costs | \$ 50,000 |

State Revolving Fund Loan Program Asset Management Program Certification Form Inclusive of Fiscal Sustainability Plan Certification

(To be submitted either at the time of loan closing or no later than the final disbursement of a Participant's loan proceeds)

| | | | |
|--|-------------|-------------------------|--|
| Participant Name Tippecanoe and Chapman Regional Sewer District | | | |
| Street Address | | P. O. Box Number 572 | |
| City North Webster | State IN | Zip Code 46555 | |

Indiana Code 5-1.2-10-16 requires a Participant that receives a loan or other financial assistance from the State Revolving Fund Loan Program (SRF) to certify that the Participant has documentation demonstrating it has the financial, managerial, technical and legal capability to operate and maintain its water or wastewater collection and treatment system. A Participant must demonstrate that it has developed an asset management program as defined in the Indiana Finance Authority's (Authority) Asset Management Program Guidelines.

Section 603(d)(1)(E) of the Federal Water Pollution Control Act (FWPCA) requires a recipient of a loan for a project that involves the repair, replacement, or expansion of a publicly owned treatment works to develop and implement a Fiscal Sustainability Plan (FSP). The requirement pertains to those portions of the treatment works paid for with Clean Water SRF Loan Funds.

The Asset Management Program (AMP) shall be inclusive of the requirements of the FSP for Wastewater and Drinking Water projects and shall include at a minimum the following: (1) A system map (2) An inventory and assessment of system assets (3) development of an infrastructure inspection, repair, and maintenance plan, including a plan for funding such activities (4) an evaluation and implementation of water and energy conservation efforts (5) An analysis of the customer rates necessary to support the AMP (6) Audit performed at least every two years (7) Demonstration of the technical, managerial, legal and financial capability to operate and maintain the system, per the guidelines established by the Authority.

I hereby certify that I am an authorized representative for the above listed Participant and pursuant to IC 5-1.2-10-16 and Section 603(d)(1)(E), the Participant has developed and is implementing an AMP (inclusive of the requirements of an FSP) that meets the requirements established by the Authority. Upon the request of the Environmental Protection Agency (EPA) or the Indiana SRF, the Participant agrees to make the AMP (which includes the FSP requirements) available for inspection and/or review.

Participant's estimated capital asset needs in the next 5 years: \$ _____

| | |
|--|----------------------------|
| | |
| Signature of Authorized Representative | Date |
| | |
| Printed Name | Phone Number/Email Address |

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX O
AMP-FSP FORM

EAST WEBSTER LAKE AREA
WASTEWATER COLLECTION SYSTEM

APPENDIX P
COST & EFFECTIVENESS CERTIFICATION

Cost & Effectiveness Certification Form

(Pursuant to Section 602(B)(13) of the Federal Water Pollution Control Act)
(Applies to all assistance recipients submitting an application on or after October 1, 2015)
(To be submitted prior to Participant's Wastewater Loan Closing)

| | | | |
|--|-------------|-------------------------|--|
| Participant Name Tippecanoe and Chapman Regional Sewer District | | | |
| Street Address | | P. O. Box Number 572 | |
| City North Webster | State IN | Zip Code 46555 | |

Section 602(B)(13) of the Federal Water Pollution Control Act (FWPCA) requires a recipient of a loan to certify that the recipient:

- 1) has studied and evaluated the cost and effectiveness of the processes, materials, techniques, and technologies for carrying out the proposed project or activity for which assistance is sought under the Clean Water State Revolving Fund Loan Program; and
- 2) has selected, to the maximum extent practicable, a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation, taking into account –
 - (i) the cost of constructing the project or activity;
 - (ii) the cost of operating and maintaining the project or activity over the life of the project or activity; and
 - (iii) the cost of replacing the project or activity

Certification

We hereby certify pursuant to Section 602(B)(13) that the Participant has completed the requirements of Section 602(B)(13) as set forth in items (1) and (2) above.

Signature of the Authorized Representative

Printed Name: _____

Signature: _____

Date: _____

Signature of Consulting Engineer

Printed Name: _____

Signature: _____

Date: _____